REFERENCE DOCUMENT 2018

INCLUDING THE ANNUAL FINANCIAL REPORT

ARKEMA
INNOVATIVE CHEMISTRY

The different parts constituting the annual financial report are identified in the table of contents by the pictogram AFR

REFERENCE DOCUMENT 2018

INCLUDING THE ANNUAL FINANCIAL REPORT

This document is a free translation of the French language reference document that was filed with the French Financial Markets Authority (*Autorité des marchés financiers - AMF*) on 11 April 2019, in accordance with Article 212-13 of its general regulations. It may be used to support a financial operation only if supplemented by a transaction note approved by the AMF. This document was drafted by the issuer and is binding for its signatories.

This translation has been prepared solely for the information and convenience of English-speaking readers. No assurances are given as to the accuracy or completeness of this translation, and the Group assumes no responsibility with respect to this translation or any misstatement or omission that may be contained therein. In the event of any ambiguity or discrepancy between this translation and the French reference document, the French reference document shall prevail.

MESSAGE FROM THIERRY LE HÉNAFF

CHAIRMAN AND CHIEF EXECUTIVE OFFICER

Ladies and Gentlemen,

2018, an excellent year

In 2018, Arkema continued to grow in a more volatile global economic environment. Sales approached €9 billion, driven by strong organic growth of 8%, and EBITDA rose by 6% to €1,474 million, surpassing the record levels reached in 2017. With free cash flow of around €500 million, cash generation remained high despite accelerating organic growth investments and a more unfavourable raw materials context. Finally, the environmental and safety performance of the Group continued to improve this year.

These results confirm the solidity of our Group and its capacity to adapt in a mixed macro-economic environment, marked by volatility in oil and raw materials prices and currencies, as well as by uncertainties arising from geopolitical tensions.

They confirm the quality of our portfolio of businesses, combining excellent positions in specialty businesses that account for 70% of our sales and offer promising growth opportunities over the long term, as well as global and competitive positions in intermediate product lines, that achieved a record year.

They also attest to the constant engagement of our teams with their customers, to our global geographical presence, and to our innovation dynamic, which is a powerful growth driver.

Reflecting its confidence in the Group's medium- and long-term potential, the Board of Directors proposed an increase of nearly 9% in the dividend to €2.50 per share.

Continuing our transformation to prepare for the future

The business environment remains contrasted and volatile in 2019. In this context, our priority will be to continue to deliver a high-level performance whilst actively preparing for the future by rolling out our ambitious strategy of industrial investments, sustainable innovation and targeted acquisitions.

In the past few years, we have all been able to observe the major social and technological changes the world faces. Rising world population, the need for environmental protection, climate change, the growing scarcity of natural resources, as well as digitalization, offer many challenges but also opportunities for industrial companies such as ours.

The technological solutions we are developing in lightweight materials, new energies and bio-based products position us as a key player in addressing these challenges. Our capacity to innovate enables us to address the sometimes extreme challenges faced by our customers in such leading-edge sectors as aerospace, electronics, oil and gas extraction, automotive and sports, offering them constant support along the path to more sustainable growth.

Over the coming years, Arkema will continue to invest to support its customers, notably in Asia and North America. A number of significant start-ups are expected in 2019: in Kepstan® PEKK, an extreme material, in the United States, in Sartomer resins in China and in acrylics in the United States. We are also pushing ahead with major development projects in thiochemicals in Malaysia and specialty polyamides in Asia.

Finally, the Group will continue its targeted acquisitions policy, notably in adhesives, as with the three acquisitions made in 2018 in the United States, in Japan, and in instant adhesives in Europe, in fast-growing niche markets that offer synergies with Bostik.

Together with our actions in corporate social responsibility, commercial and operational excellence and digital transformation, which will all intensify in the years to come, these projects will contribute to increasing further the already predominant proportion of our specialty businesses, and to strengthening our position as a major player in specialty chemicals and advanced materials.

In order to address these challenges, I know that I can count on the engagement of our 20,000 employees worldwide, on our entrepreneurial culture, and on our values of performance, solidarity and accountability.

Along with all of the Group's directors and Executive Committee members, I am confident that these numerous assets and the quality of our projects position us well for the coming years and will support the Group's capacity to create value over the long term.

Thierry Le Hénaff

GROUP PROFILE

A MAJOR PLAYER IN SPECIALTY CHEMICALS AND IN ADVANCED MATERIALS, WITH A LEADING INDUSTRIAL AND COMMERCIAL PRESENCE, AND A BALANCED GEOGRAPHICAL FOOTPRINT WITH STRONG POSITIONS IN EUROPE, NORTH AMERICA AND ASIA.

SALES OF
€8.8 billion

Thanks to its innovative solutions developed by its three divisions - High Performance Materials, Industrial Specialties and Coating Solutions -, Arkema contributes to address the world's current and future challenges in areas such as lightweight materials, new energies, access to drinking water, home comfort and bio-based products. With leading positions in its main product lines, the Group supports its customers in their quest for sustainable performance and their long-term development.

As a responsible industrial company with a global footprint, Arkema is committed to achieving continuous improvement and operational excellence, driven by the collective energy of its 20,000 employees.

Drawing on its solid entrepreneurial culture, Arkema engaged in a strong transformation process toward specialty chemicals since its stock market listing in May 2006, thanks to a strategy based on three key growth drivers: innovation for sustainable development, targeted acquisitions in high value-added businesses and industrial investments in high-growth regions. Thanks to this transformation, the Group has multiplied its EBITDA by four and the share price has more than tripled since 2006.

20,000
EMPLOYEES

A PRESENCE IN
55 countries

136
PRODUCTION SITES

€237 million
R&D EXPENDITURE

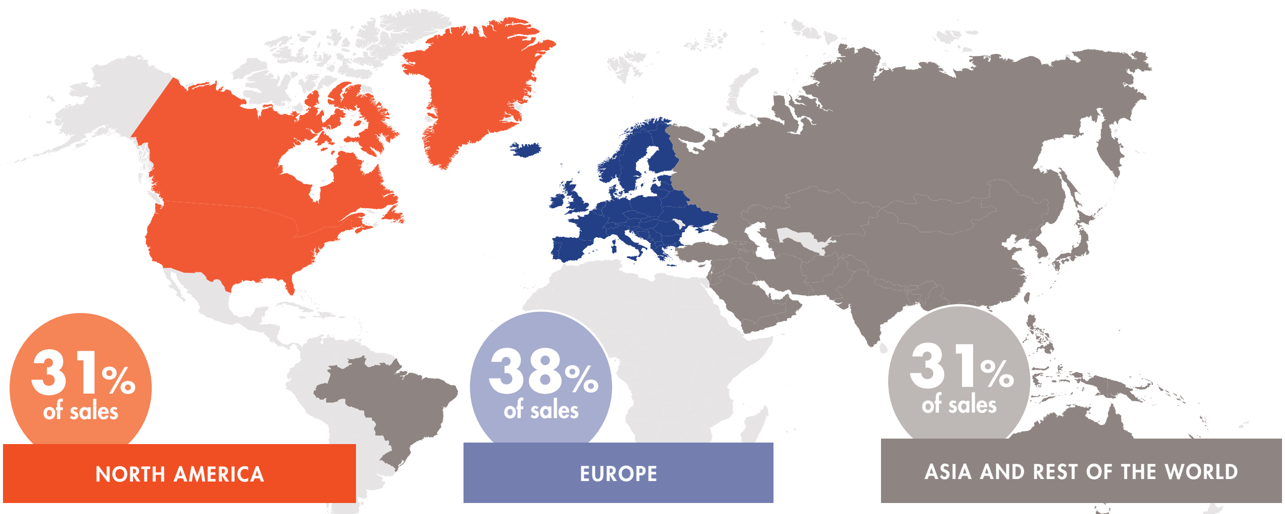
3 regional
R&D HUBS

€561 million
CAPITAL EXPENDITURE (1)

(1) Recurring and exceptional capital expenditure.

Data for 2018

A GLOBAL INDUSTRIAL COMPANY



NORTH AMERICA (31% of sales)

- **3,900** employees
- **38** production sites
- **4** R&D centers

EUROPE (38% of sales)

- **11,100** employees
- **60** production sites
- **7** R&D centers

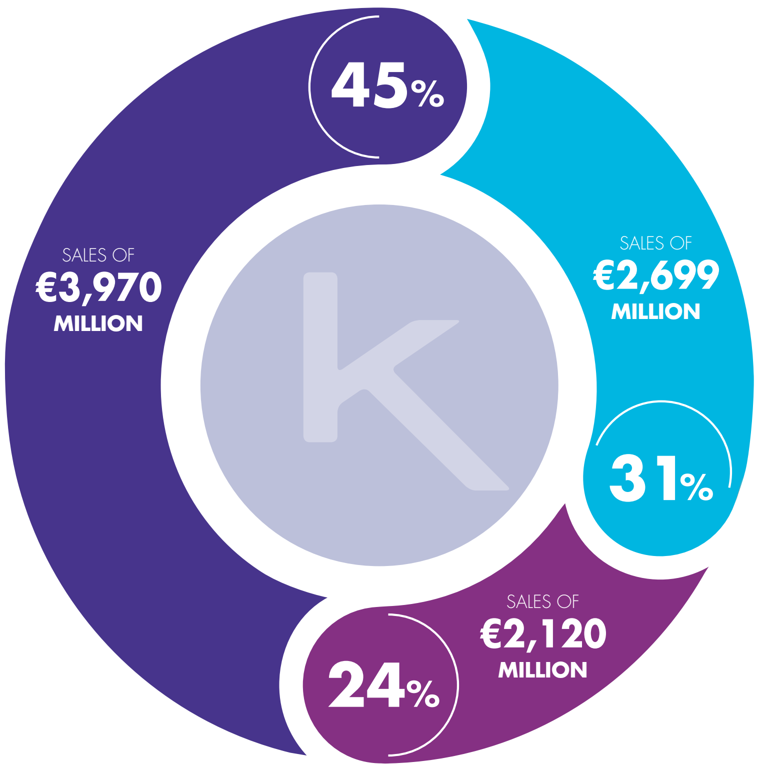
ASIA AND REST OF THE WORLD (31% of sales)

- **5,000** employees
- **38** production sites
- **4** R&D centers

THREE DIVISIONS

HIGH PERFORMANCE MATERIALS

Innovative, high value-added solutions to address sustainable development challenges and its clients' technical challenges



INDUSTRIAL SPECIALTIES

High-profitability, integrated industrial niches with global leading positions

COATING SOLUTIONS

Performance resins, notably for decorative paints and industrial coatings, with extensive, global product ranges

KEY FIGURES

KEY FINANCIAL DATA

(In millions of euros unless otherwise stated)	2018	2017	2016	2015	2014
Sales	**8,816**	8,326	7,535	7,683	5,952
EBITDA	**1,474**	1,391	1,189	1,057	784
EBITDA margin	***16.7%***	*16.7%*	*15.8%*	*13.8%*	*13.2%*
Recurring operating income (REBIT)	**1,026**	942	734	604	447
REBIT margin	***11.6%***	*11.3%*	*9.7%*	*7.9%*	*7.5%*
Net income – Group share	**707**	576	427	285	167
Adjusted net income	**725**	592	418	312	246
Net income per share *(euros)*	**8.84**	7.17	5.24	3.42	2.53
Adjusted net income per share *(euros)*	**9.51**	7.82	5.56	4.23	3.72
Dividend per share *(euros)*	**2.50** (1)	2.30	2.05	1.90	1.85
Shareholders' equity	**5,028**	4,474	4,249	3,949	3,573
Net debt	**1,006**	1,056	1,482	1,379	154
Gearing	**20%**	24%	35%	35%	4%
Net debt/EBITDA	**0.7**	0.8	1.2	1.3	0.2
Capital employed	**6,996**	6,554	6,829	6,466	4,565
Return on average capital employed	**15.1%**	14.1%	11.0%	11.0%	10.4%
Working capital on sales	**13.4%**	13.1%	14.5%	14.6%	16.1%
Free cash flow	**499**	565	426	442	21
EBITDA to cash conversion rate	**38%**	41%	36%	42%	18%
Recurring capital expenditure	**500**	420	423	431	346
Exceptional capital expenditure	**61**	10	0	0	124

Definitions of the main financial indicators are given in the glossary and in note C.1 "Alternative performance indicators" to the consolidated financial statements at 31 December 2018.

(1) Dividend proposed at the annual general meeting on 21 May 2019.

KEY NON-FINANCIAL DATA

INNOVATION

	2018	2017	2016	2015	2014
R&D expenditure *(in millions of euros)*	**237**	235	222	209	155
Number of patent applications filed	**244**	239	196	193	186
Number of patent applications filed relating to sustainable development	**154**	150	116	121	128

SAFETY

	2018	2017	2016	2015	2014
Total recordable injury rate (TRIR) (1)	**1.3**	1.6	1.5	1.5	1.9
Process safety event rate (PSER)	**4.4**	3.9	N/A	N/A	N/A

(1) The TRIR includes injuries to both Group and subcontractor employees.

EMPLOYMENT

	2018	2017	2016	2015	2014
Headcount	**20,010**	19,779	19,637	18,912	14,280
Percentage of women in senior management and executive positions	**21%**	19%	18%	17%	17%
Percentage of non-French nationals in senior management and executive positions	**39%**	37%	39%	N/A	N/A

ENVIRONMENT

(in EFPI terms compared with 2012)

	2018	2017	2016	2015	2014
Greenhouse gas emissions	**0.46**	0.52	0.60	0.62	0.70
Volatile organic compound emissions	**0.62**	0.66	0.80	0.83	0.79
Chemical oxygen demand	**0.59**	0.70	0.78	0.93	1.03
Net energy purchases	**0.88**	0.89	0.92	0.98	0.99

GLOBAL TRENDS
A WORLD UNDERGOING SIGNIFICANT CHANGE

AS A RESPONSIBLE INDUSTRIAL COMPANY, ARKEMA CONTRIBUTES TO ADDRESSING FOUR CURRENT AND FUTURE MAJOR CHALLENGES THANKS TO ITS INNOVATIVE SOLUTIONS AND THE OPTIMIZATION OF ITS INDUSTRIAL OPERATIONS.

GLOBAL TRENDS  **Global consequences**

INCREASING URBANIZATION

By 2050, the world population is expected to reach around 10 billion people, an increase of nearly 30%, driven mainly by emerging countries.

Growth is concentrated in urban areas, with urban populations expected to rise by around 2.5 billion people between now and 2050. This trend is accompanied by a gradual increase in living standards.

- Strong demand for the construction and renovation of buildings and infrastructure
- Increased demand for transportation, energy, water and services
- Changing lifestyles and consumer behavior
- Increasing concern about housing quality, comfort and energy efficiency

RESOURCE SCARCITY

The growth in the world population, increasing living standards and the rapid pace of industrialization are all driving an increase in the use of the world's resources. Based on current conditions, the consumption of raw materials could therefore triple by 2050.

- Scarcity of non-renewable resources
- Increasing difficulties in accessing safe drinking water

CLIMATE CHANGE

Urbanization, industrialization and the increase in the number of cars and air travel all contribute to global warming and climate change.

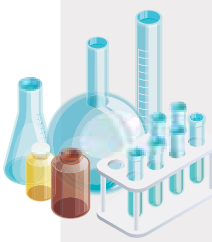
To address these issues, the Paris Agreement aims to keep the global temperature rise by the end of the century to below 2°C.

- Increase in the global temperature and its social and environmental consequences
- Increase and intensification of extreme weather events
- Need to speed up the transition to more sustainable lifestyles and economic models (decoupling)

NEW TECHNOLOGIES

New technologies, such as artificial intelligence, material sciences and robotics are growing fast, creating new commercial and industrial possibilities.

- Changing lifestyles and consumer behavior (*e.g.* percentage of the population equipped with connected objects)
- Significant increase in available data
- Increased production rates



THE CHEMICAL INDUSTRY

Seen by many as the "industry of industries", the chemical industry manufactures a wide range of products for other major industries, including the construction, chemical, automotive, coatings, electronics, energy, food and pharmaceutical industries. In 2017, it generated estimated sales of around **€3,475 billion** (1) worldwide.

The chemical industry operates on a global scale and more particularly in three regions: Europe, North America and Asia-Pacific. The latter has seen its share increase continuously in recent years. It now represents around **62% of global production** in value terms (1) and is expected to continue to record the fastest growth over the coming years.

Lastly, the chemical industry is highly fragmented, in terms of products (several tens of thousands), end markets, and industry players (the top ten competitors have no more than a 10% share of the global market (2)). This level of fragmentation offers opportunities for consolidation in certain segments such as adhesives.

(1) *Source: Cefic Facts and Figures 2018. Europe accounts for around 19% and North America for 15%.*

(2) *Source: Arkema internal estimates.*

OUR SOLUTIONS
TO CURRENT AND FUTURE CHALLENGES

INCREASING URBANIZATION

Key challenges Arkema contributes to address	ARKEMA'S SOLUTIONS
• Facilitate the transportation of energy and water, as well as access to high-quality water.	• **Advanced materials** for water ultrafiltration (Kynar® PVDF) and transportation (Rilsan® polyamides)
• Treat domestic and industrial wastewater and other waste.	• **Hydrogen peroxide and acrylics** to disinfect water and treat wastewater
• Meet changing demand for consumer products.	• **Acrylics and adhesives** for hygiene, **thiochemicals** for animal feed and **advanced materials** for sport, cosmetics and packaging
• Improve thermal and acoustic insulation, comfort and air quality in housing.	• **Adhesives and sealants** by Bostik for insulation and sealing and low-VOC **coating resins** for paints

RESOURCE SCARCITY

Key challenges Arkema contributes to address	ARKEMA'S SOLUTIONS
• Contribute to the development of new energies, such as lithium-ion batteries for electric vehicles, photovoltaics and wind power.	• **Advanced materials** for new energies: Kynar® PVDF for batteries and solar power, Apolhya® for solar power, Elium® recyclable resin for wind power
• Promote eco-design: - Develop products made from bio-based, renewable or recycled raw materials - Extend products' lifespan - Recycle end-of-life products.	• **Bio-based** Rilsan® polyamides 11 and 10, made from castor oil plants • Kynar® and Kynar Aquatec® coatings for reflective roofs and Kercoat® and Opticoat® coatings for glass bottles • Elium® recyclable resin for composites and the Cecabase RT® additive for asphalt
• Optimize the consumption of energy, raw materials and water.	

CLIMATE CHANGE

Key challenges Arkema contributes to address	ARKEMA'S SOLUTIONS
• Make vehicles and aircraft lighter, to limit their fuel consumption and reduce their CO_2 emissions.	• **Lightweighting solutions:** - **Advanced materials used as substitutes for metal**: Rilsan® HT, Kepstan® PEKK and thermoplastic composites (Elium®) - Altuglas® ShieldUp as a substitute for glass - **Adhesives** for the assembly of metal parts, as a substitute for mechanical bonding
• Improve buildings' energy performance to reduce energy, heating and air-conditioning needs.	• **Thermal insulation solutions:** - Adhesives and sealants by Bostik - Kynar® Aquatec coatings for reflective roofs
• Reduce greenhouse gas (GHG) emissions across the whole value chain.	• Development of HFO refrigerants with a very low global warming potential • 2025 target to reduce GHG emissions by 50% compared with 2012

NEW TECHNOLOGIES

Key challenges Arkema contributes to address	ARKEMA'S SOLUTIONS
• Contribute to the development of new markets (e.g. consumer electronics, sensors).	• **Advanced materials** for digital mobility devices (technical polymers for smartphones and tablets and Kynar® for batteries)
• Speed up the expansion of new production technologies such as 3D printing.	• **Full range of resins for 3D printing:** - Sartomer's N3xtDimension® photocure resins, Kepstan® PEKK, Rilsan® polyamides - for all types of additive manufacturing
• Leverage digital technologies to support operational and commercial excellence.	• **Digital plant** thanks to the deployment of predictive maintenance tools and 3D and 4D technologies

A BALANCED PORTFOLIO
OF BUSINESSES

THE GROUP'S BUSINESS PORTFOLIO COMBINES STRONG POSITIONS IN SPECIALTY BUSINESSES, WITH HIGH GROWTH POTENTIAL, AND GLOBAL, COMPETITIVE INTERMEDIATE PRODUCT LINES.
THIS COMPLEMENTARITY ENABLES ARKEMA TO ADAPT TO DIFFERENT ECONOMIC ENVIRONMENTS, AS DEMONSTRATED BY THE STRONG INCREASE IN ITS RESULTS OVER THE PAST YEARS.

SPECIALTIES

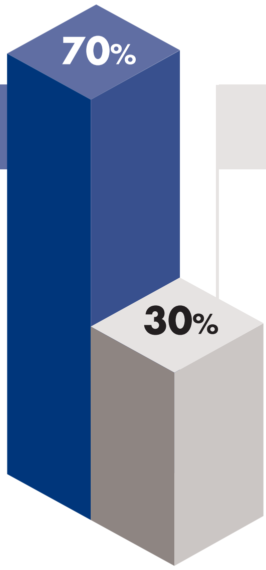
Advanced materials
(Technical Polymers and Performance Additives)

Adhesives

Thiochemicals

Performance coatings
(Coating resins and additives)

Hydrogen Peroxide



INTERMEDIATES

PMMA

Fluorogases

Acrylics

As a % of Group sales

High value-added activities combining differentiation and innovation:

- High technological innovation
- Solutions tailored to customers' specific needs
- Long-term partnerships with major industrial players, leaders in their field
- Well-known brands
- Proprietary technologies

High-growth niche markets:

- Driven by sustainable megatrends: lightweight materials, bio-based products, 3D printing, home efficiency, new energies
- Limited number of players

Globally resilient businesses, close to end markets and particularly well-placed to contribute to the world's current and future major challenges

Global leading positions:

- Number 2 or 3 worldwide
- Cutting-edge proprietary technologies
- Global and competitive production footprint, with platforms in Europe, North America and Asia
- Strong customer partnerships

Businesses with high profitability but greater exposure to supply/demand balances

LONG-TERM TARGET

More than 80 %

OF SALES GENERATED BY SPECIALTY BUSINESSES

STRONG ASSETS

ARKEMA CAN LEVERAGE A SET OF SOLID ASSETS AND STRENGTHS TO ROLL OUT ITS STRATEGY AND CARRY OUT ITS NUMEROUS PROJECTS, ENABLING THE GROUP TO STRENGTHEN ITS POSITION AMONG THE WORLD LEADERS IN SPECIALTY CHEMICALS.

Well-known brands

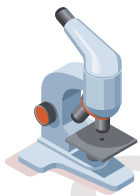
Contributing to customer loyalty.

In the top 3 globally on 90% of total sales

Extensive R&D capabilities

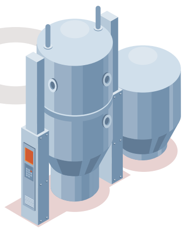
Enabling us to launch new products, provide our customers with the technical support they need, and further improve the efficiency of our manufacturing processes, thanks to:

- the **expertise** of our **1,600 researchers** at our 15 research centers worldwide;
- a portfolio of close to **9,000 patents**; and
- 244 new patent applications filed in 2018.



Strong long-term customer partnerships

With leading industrial customers in areas such as 3D printing, composites, water treatment and batteries.



Experienced, committed teams

Who contributed to shaping Arkema into a leading industrial group, thanks to their ability:

- **to carry out complex industrial projects** such as the construction of a thiochemicals platform in Malaysia, in a new country for the Group, with a new partner and based on an innovative process;
- **to ensure smooth integration** of major acquisitions such as Bostik; and
- **to adapt** to the different macro-economic environments that Arkema has faced over the last 13 years, and to strongly improve its financial performance.

A competitive and global presence

To support our customers in their geographical expansion thanks to:

- a **strong manufacturing footprint** in Europe, North America and Asia;
- **proprietary manufacturing processes** that are technologically complex; and
- significant **expertise** in **large-scale investment projects**, with high efficiency in terms of costs, timing and technical implementation.

A solid financial structure

- **Excellent cash generation** and a high EBITDA to cash conversion rate.
- **Tightly-controlled net debt**, representing, at end-2018, 0.7 times annual EBITDA and 20% gearing.

Giving us the financial flexibility needed to carry out our ambitious investment and targeted acquisitions policy while ensuring regular dividend growth.

THE GROUP'S AMBITION
MEDIUM- AND LONG-TERM TARGETS

ARKEMA'S AMBITION IS TO CONSOLIDATE ITS POSITION AMONG THE GLOBAL LEADERS IN SPECIALTY CHEMICALS BY ACCELERATING THE DEVELOPMENT OF THESE BUSINESSES.

Following the stock market listing in May 2006, Arkema started an in-depth transformation to reposition its portfolio of businesses toward a significantly higher proportion of specialty chemicals, which are more resilient, close to end markets, and offer strong growth potential.

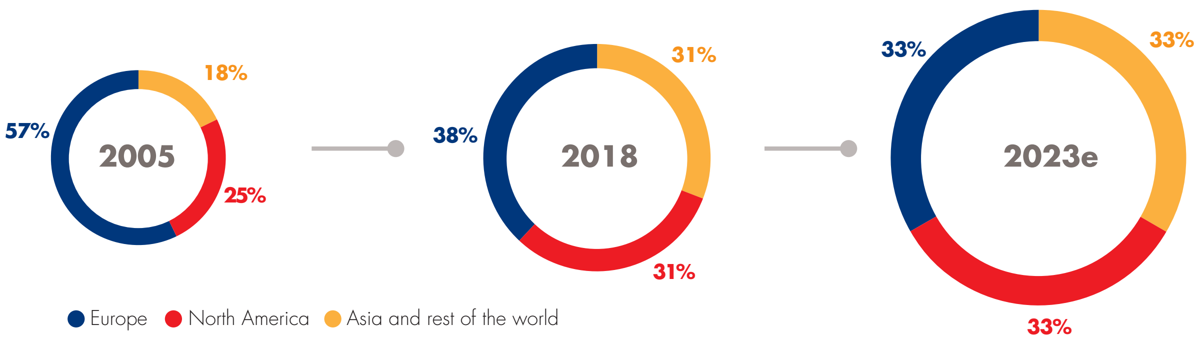
Accelerating the development of specialty businesses

Arkema's target is for these businesses to account for **more than 80% of Group sales** by 2023, compared with 70% today, thereby contributing to resilient growth and regular cash generation for the Group.

Continuing the geographic rebalancing

Together with its in-depth profile change, Arkema rebalanced its geographic exposure by developing its activities in North America and high-growth countries, primarily in Asia.

Arkema aims to finalize, by 2023, this geographic rebalancing with Europe, North America and Asia and the rest of the world each accounting for **one third of total sales**.



AMBITIOUS LONG-TERM FINANCIAL TARGETS

For 2023, Arkema is aiming to achieve a **REBIT margin** between **11.5%** and **12.5%** and a high **EBITDA to cash conversion rate** of **35%**.

This ambition will be achieved with strict financial discipline, notably a net debt to EBITDA ratio of less than 2 and a return on capital employed [(1)] of at least 10%, while preserving a solid investment grade rating.

In the medium term, Arkema is aiming to achieve sales of €10 billion and an EBITDA margin close to 17% by 2020.

A STRONG CSR AMBITION

The Group has defined a well-established roadmap with a target to be amongst the top performers in this area. This includes non-financial targets for 2025 which demonstrate Arkema's commitment to continuous progress in safety, the environment and diversity.

Defined in normalized market conditions.

(1) (REBIT - current taxes) / (net debt + shareholders' equity).

SAFETY

Total recordable injury rate

TRIR < 1.2

(including subcontractor employees)

Process safety event rate

PSER < 3

ENVIRONMENT

-50%

Greenhouse gas emissions

-40%

Chemical oxygen demand

-15%

Net energy purchases

-33%

Volatile organic compound emissions

EMPLOYMENT

23% to 25%

Percentage of women in senior management and executive positions

42% to 45%

Percentage of non-French nationals in senior management and executive positions

OUR STRATEGY

TO ACHIEVE ITS AMBITION, ARKEMA CONTINUES TO IMPLEMENT AN AMBITIOUS TRANSFORMATION STRATEGY BASED ON THREE STRONG GROWTH DRIVERS: INNOVATION FOR SUSTAINABLE DEVELOPMENT, TARGETED ACQUISITIONS IN HIGH VALUE-ADDED SPECIALTIES, AND CUTTING-EDGE INDUSTRIAL INVESTMENTS TO SUPPORT CUSTOMERS AND PARTNERS IN HIGH-GROWTH REGIONS.

To grow further, the Group benefits from very solid foundations and is implementing initiatives in four cross-functional areas: commercial excellence, operational excellence, corporate social responsibility and digital transformation. Arkema will reinforce its efforts in these four areas over the coming years.

TWO MAJOR GROWTH PLATFORMS

ARKEMA IS MORE SPECIFICALLY ROLLING OUT ITS STRATEGY TO ACCELERATE THE DEVELOPMENT OF TWO MAJOR PLATFORMS OF ITS MEDIUM- AND LONG-TERM GROWTH: ADHESIVES AND ADVANCED MATERIALS. THESE TWO BUSINESSES SHOULD ACCOUNT FOR AROUND 60% OF SALES IN 2023 (VERSUS 45% IN 2018).

BOSTIK ADHESIVES: bolt-on acquisitions and increasing profitability

2023 TARGETS

More than **1/3** OF GROUP SALES

REBIT MARGIN **12.5%** to **13%**

Arkema aims to more than double its sales in adhesives (from a 2016 baseline of €1.6 billion), with the increase coming from **organic growth for one third** and from **bolt-on acquisitions for the other two thirds**. Arkema therefore intends to participate fully in the consolidation of this attractive but still fragmented market.

To achieve its ambition, Bostik is actively pursuing:

- its geographic expansion, particularly in emerging countries;
- its innovation efforts, notably in structural adhesives and engineering adhesives, two very fast-growing niche markets;
- its initiatives to enhance operational excellence and simplify processes and its organization; and
- the implementation of acquisition synergies.

ADVANCED MATERIALS [1]: innovation and geographic expansion

2023 TARGETS

More than **25%** OF GROUP SALES

REBIT MARGIN **14%** to **15%**

Thanks to their properties, **advanced materials** offer significant opportunities for innovation in such areas as lightweight materials, bio-based polymers, new energies and consumer goods design.

Arkema supports its customers' development in fast-growing countries thanks to the **numerous industrial projects** under way in:

- photocure resins in China;
- PEKK in the United States; and
- specialty polyamides in Asia and France.

Thanks to these projects, the Group is targeting organic growth of around 5% in this business by 2023.

(1) Technical Polymers and Performance Additives.

FIRST STRATEGIC PRIORITY

INNOVATION FOR SUSTAINABLE DEVELOPMENT

TECHNOLOGICAL INNOVATION IS AT THE HEART OF ARKEMA'S STRATEGY AND A KEY GROWTH DRIVER, FOSTERING THE DEVELOPMENT OF SUSTAINABLE SOLUTIONS IN PRODUCTS, PRODUCT APPLICATIONS AND PRODUCTION PROCESSES

Supporting customers address today's challenges

Arkema develops new products and applications to meet customers' increasingly demanding needs in leading-edge sectors such as aerospace, automotive, consumer electronics, new energies and oil and gas. Thanks to its 15 R&D centers across the world, the Group adapts its solutions to customers' specific expectations in each region.

Anticipating future trends

Arkema anticipates technological and market changes and is developing today, through a dedicated incubator structure, the breakthrough innovations that will meet society's needs in the years to come. For example, Arkema developed Kepstan® PEKK – a material for extreme environments that can withstand temperatures of up to 260 degrees – following ten years' R&D work, for which a production unit started operating recently in the United States.

Contributing to operational excellence

The Group's R&D department provides innovations to production facilities to allow them to produce safely and competitively, whilst reducing their environmental footprint.

Assessing the sustainability of our solutions

In 2018, the Group initiated a program to analyze and assess its portfolio of solutions in light of sustainability criteria and contribution to the United Nations' sustainable development goals. On completion of the pilot phase, the program will be rolled out across all Arkema businesses from 2019.

KEY R&D FIGURES (2018)

More than **1,600** RESEARCHERS

€237m IN R&D EXPENDITURE

3.7% OF ADVANCED MATERIALS SALES

15 R&D centers ACROSS THE THREE HUBS IN EUROPE, ASIA AND NORTH AMERICA

244 PATENT APPLICATIONS FILED
> 60 % RELATING TO SUSTAINABLE DEVELOPMENT

6 innovation platforms ideally positioned to meet tomorrow's challenges

The chemicals industry will play an important role in addressing the world's many challenges. Arkema has identified major social trends in order to ensure its solutions adequately address market demand and specific customer expectations worldwide, and to optimize its research efforts.

Based on this work, which is updated on an ongoing basis, the Group has set up 6 innovation platforms which contribute to six United Nations' sustainable development goals.

BIO-BASED PRODUCTS

- Around 9% of Group sales
- Castor oil-based specialty polyamides 11 and 10

LIGHTWEIGHT MATERIALS AND DESIGN

- Specialty polyamides, Kepstan® PEKK and Elium® recyclable resin for thermoplastic composites used in the automotive, aerospace and oil and gas sectors
- Specialty polyamides, Kepstan® PEKK and N3xtDimension® UV curable resins for 3D printing

NEW ENERGIES

- Kynar® PVDF for batteries (separator coatings and binders)
- Kynar® PVDF for photovoltaic applications
- Elium® recyclable resin for the wind turbine industry

WATER MANAGEMENT

- Kynar® PVDF for micro-filtration
- Polyamides for water supply systems

ELECTRONICS SOLUTIONS

- Kynar® PVDF and specialty polyamides for tablets and smartphones
- Piezotech® piezoelectric polymers for connected objects

HOME EFFICIENCY AND INSULATION

- Adhesives and sealants for windows, doors and insulation panels
- Acrylic emulsions with low volatile organic compounds content

Numerous partnerships
WITH UNIVERSITIES AND PUBLIC AND PRIVATE RESEARCH LABORATORIES

HIGHLIGHTS

- Inauguration of an International Teaching and Research Chair on innovative materials, with the *École polytechnique* in France
- Partnerships in thermoplastic composites, with:
  - Hexcel, one of the world's leading manufacturers of high-performance composite materials for the aerospace industry; and
  - Barrday, for the oil and gas industry.
- Opening of a center of excellence in the United States dedicated to 3D printing

2018

SECOND STRATEGIC PRIORITY

INVESTMENT IN HIGH-GROWTH REGIONS

ARKEMA HAS AN AMBITIOUS INVESTMENT STRATEGY IN NORTH AMERICA AND HIGH-GROWTH COUNTRIES, PRIMARILY IN ASIA, WHICH COVER KEY GROWTH MARKETS FOR THE GROUP, INCLUDING CONSUMER PRODUCTS (ELECTRONICS, SPORTS, HYGIENE), NEW ENERGIES AND TRANSPORTATION.

AS A RESULT, ARKEMA HAS REBALANCED ITS GEOGRAPHIC EXPOSURE IN 2018, MAKING 31% OF SALES IN ASIA AND THE REST OF THE WORLD, 31% IN NORTH AMERICA AND 38% IN EUROPE.

An ambitious investment policy

To support its customers' geographic expansion, Arkema aims for recurring capital expenditure to average **5.5% of sales** per year, with 45% dedicated to growth projects and 55% to maintenance, safety and the environment.

In addition to this recurring capital expenditure, the Group will invest around **€500 million in exceptional capital expenditure** in the period 2018-2021 on:

- a doubling in production capacity of the thiochemicals platform in Malaysia; and
- a major investment plan announced in specialty polyamides in Asia, notably with the construction of a new monomer and Rilsan® polyamide 11 production facility to support the high customer demand for lightweight bio-based materials in automotive, 3D printing and consumer products markets.

In 2019, Arkema's recurring and exceptional capital expenditure is expected to amount to around €610 million.

2019

ACRYLICS

90 kt acrylic acid reactor in Clear Lake (United States)

Markets: adhesives, paints, coatings, water treatment

ADVANCED MATERIALS

30% increase in Sartomer's production capacity in Nansha (China)

Markets: 3D printing, graphic arts, electronics

ADVANCED MATERIALS

50% increase in specialty powders production capacity (France)

Markets: coatings, composites, 3D printing

LARGE-SCALE INDUSTRIAL PROJECTS

2020

THIOCHEMICALS

Twofold increase in production capacity in Kerteh (Malaysia)

Markets: animal feed, oil and gas, refining

ADVANCED MATERIALS

25% increase in PA12 global production capacity (China)

Markets: lightweight materials, sports, electronics

ADHESIVES

New world-class adhesives plant in Nara (Japan)

Markets: non-woven, industrial adhesives

2021

ADVANCED MATERIALS

50% increase in PA11 global production capacity (Asia)

Markets: lightweight materials, sports, electronics

- North America
- Asia and rest of the world
- Europe

HIGHLIGHTS

- €561 million in recurring and exceptional capital expenditure
- Recurring capital expenditure at 5.7% of Group sales
- Ramp-up of the Honfleur specialty molecular sieve site in France following the doubling of production capacity
- Start-up of the Calvert City plant in the United States after a 20% increase in production capacity of Kynar® PVDF for water filtration, chemical engineering and high-performance cables markets
- Start-up in early 2019 of the Kepstan® PEKK facility in Mobile, United States, for aerospace, oil and gas and 3D printing markets

2018

THIRD STRATEGIC PRIORITY

TARGETED ACQUISITIONS TO STRENGTHEN HIGH VALUE-ADDED SPECIALTIES

ARKEMA PURSUES A POLICY OF TARGETED, SMALL TO MID-SIZED ACQUISITIONS, FOCUSED ON ADHESIVES, ADVANCED MATERIALS AND DOWNSTREAM ACRYLICS. THESE TRANSACTIONS, WHICH COULD REPRESENT TOTAL SALES OF €1 BILLION TO €1.5 BILLION, WILL ENABLE THE GROUP TO INCREASE ITS MARKET SHARE IN THESE AREAS, STRENGTHEN ITS PORTFOLIO OF BUSINESSES AND INCREASE ITS RESILIENCE.

Acquisitions that create long-term value

In line with its ambition to carry out sustainable transactions that create value, the Group aims to make acquisitions offering significant synergies, thereby reducing the transactions' enterprise value to EBITDA multiple close to Arkema's own multiple, four or five years after the acquisition and following the full implementation of synergies.

These synergies could correspond to:

- cost synergies on purchases of raw materials, goods and services or logistics, or achieved by centralizing certain support functions or strengthening operational excellence programs; and
- new geographic, technological or commercial developments driven by the strategic fit between Arkema and the acquired businesses.

The potential acquisitions should also have an accretive impact on earnings per share and on cash generation between the first and second year of integration.

This ambition goes hand-in-hand with strict financial discipline. Arkema thus intends to maintain a very solid balance sheet and to keep a solid investment grade rating with the rating agencies and a net debt to EBITDA ratio below 2 by 2023.

HIGHLIGHTS

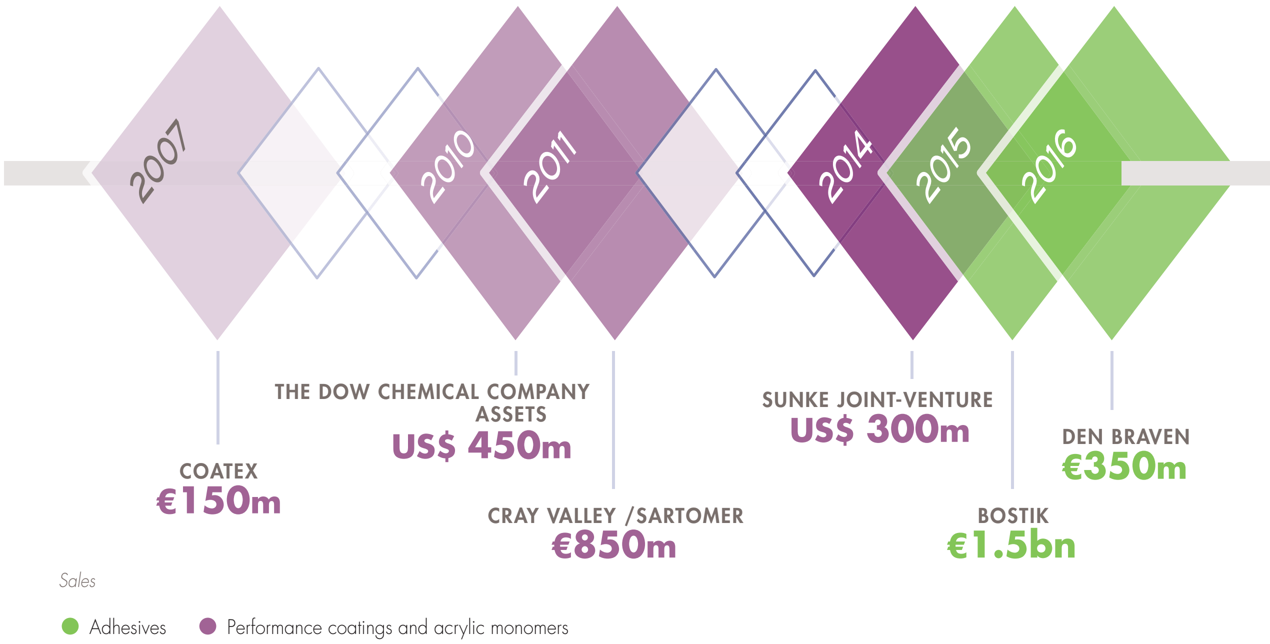
3 targeted acquisitions in adhesives:

- XL Brands, a floor covering adhesives business in the United States, for an enterprise value of US$ 205 million;
- Afinitica, specialized in instant engineering adhesives; and
- Nitta Gelatin's industrial adhesives business in Japan.

2018

TRANSFORMATIONAL ACQUISITIONS

Since 2006, thanks to active portfolio management, Arkema has significantly increased its presence in the performance coatings value chain and entered the attractive adhesives market.



A targeted divestment program

Arkema is also continuing its program to divest small non-core businesses representing a total of around €700 million in sales.

Arkema has thus finalized the following divestments:

- in late 2016, the activated carbon and filter aid business, which generated around €93 million in sales, for an enterprise value of €145 million;
- in late 2015, Sunclear, a plastic and aluminum sheet distribution business that generated sales of around €180 million, for an enterprise value of €105 million.

FIRST PILLAR

COMMERCIAL EXCELLENCE

CUSTOMERS ARE CENTRAL TO ARKEMA'S STRATEGY AND ITS INNOVATION POLICY. MEETING THEIR NEEDS AS EFFECTIVELY AS POSSIBLE AND PROMOTING THE DIVERSITY OF THE GROUP'S SOLUTIONS ARE THE TWO MAIN OBJECTIVES OF ARKEMA'S MARKETING AND COMMERCIAL EXCELLENCE PROGRAM. THIS PROGRAM ALLOWS ARKEMA TO SUPPORT ITS CUSTOMERS IN SUCH LEADING-EDGE SECTORS AS AEROSPACE, ELECTRONICS, OIL AND GAS EXTRACTION, AUTOMOTIVE, SPORT AND 3D PRINTING.

A cross-functional approach

Arkema has adopted a **cross-functional approach** notably based on:

- a network of key account managers who supervise and consolidate relationships with certain key customers in order to more effectively anticipate and meet their needs through customized solutions produced by the Group's various businesses;
- the deployment of advanced customer relationship management (CRM) tools;
- the creation of commercial platforms in certain important market segments; and
- the implementation of dedicated, ongoing training courses via the Group's Sales Academy.

Alongside initiatives to optimize customer service and enhance the competitiveness and reliability of our main production sites, this approach will help to continuously improve the customer experience.

Strategic partnerships

To strengthen its customer relationships over the long term, Arkema forges strategic partnerships with key customers that are leaders in their market or area of expertise. Some relate to industrial developments, such as the partnership with Daikin in refrigerants or with CJ CheilJedang and Novus in Thiochemicals. Others are R&D-oriented, like the partnerships signed in 2018 with Hexcel and Barrday in thermoplastic composites.

Promoting our solutions

Arkema organizes "Innovation Days" at the premises of certain customers and prospects to showcase its solutions in specific markets. The R&D and sustainable development teams, as well as the sales teams of the businesses concerned, all participate in these events, which may result in new commercial developments.

Arkema received an award from BMW in 2018, in the Sustainability category, among 15 suppliers recognized for their innovation efforts. This reward related to the Group's development of high performance polymers made from castor oil, a renewable resource for which a responsible sourcing approach is being implemented.

Expanded services portfolio

To support the sale of its products, Arkema regularly enhances its portfolio of services. The Carelflex® technical assistance service, developed in the Thiochemicals business and dedicated to the use of DMDS at refineries and petrochemical plants, is a good example of this. The Group's experts work directly at client sites, worldwide, to advise and train the technicians who use its products, thereby ensuring the highest quality of service.

3D PRINTING SOLUTIONS by ARKEMA

In late 2018, Arkema launched "3D Printing Solutions by Arkema", a commercial platform dedicated to its range of materials for 3D printing. The platform will maximize synergies between the various product lines involved and strengthen the Group's expertise and the close ties developed with its customers, partners and equipment manufacturers.

As part of this strategy, Arkema has teamed up with Autodesk and Farsoon to develop an optimized ecosystem combining printing software, hardware and advanced materials. The aim is to speed up industrial clients' adoption of polymer laser sintering technology for large-scale production.

SECOND PILLAR

CORPORATE SOCIAL RESPONSIBILITY

IN A WORLD FACED WITH A MULTITUDE OF ECONOMIC, ENVIRONMENTAL AND SOCIAL CHALLENGES, ARKEMA AIMS TO GENERATE SUSTAINABLE AND RESPONSIBLE GROWTH AND CONTRIBUTE TO ADDRESSING THOSE SOCIAL AND ENVIRONMENTAL ISSUES BY PROVIDING ITS CUSTOMERS WITH SUSTAINABLE AND INNOVATIVE SOLUTIONS THAT CONTRIBUTE TO THE SUSTAINABLE DEVELOPMENT GOALS DEFINED BY THE UNITED NATIONS.

THREE KEY COMMITMENTS

DELIVER **SUSTAINABLE SOLUTIONS** DRIVEN BY **INNOVATION**

- Solutions that address societal challenges
- Innovation at the heart of the activities
- Product stewardship

MANAGE OUR ACTIVITIES AS A **RESPONSIBLE MANUFACTURER**

- Safety of people and processes
- Health
- Environmental footprint reduction

CULTIVATE AN **OPEN DIALOGUE** AND **CLOSE RELATIONS** WITH OUR **STAKEHOLDERS**

- Ethics
- Human rights
- Employee development
- Responsible value chain
- Corporate citizenship

A clear roadmap

To measure long-term progress under its commitment to corporate social responsibility, Arkema has set a number of specific targets in three key areas:

- **4 environmental targets**, which contribute to reducing the Group's environmental footprint (emissions to air, greenhouse gas emissions, effluent releases and net energy purchases);
- **4 safety targets**, the most important ones being a reduction in the total recordable injury rate and in process safety events; and
- **2 diversity targets**, aimed at raising the percentage of women and of non-French nationals in senior management and executive positions.

Regular interaction with stakeholders

To validate its CSR approach and the relevance of the challenges identified with regard to its various stakeholders (employees, customers, research partners, suppliers, financial community, etc.), Arkema carried out in 2016 a materiality assessment and published its main challenges in a matrix. The results of this assessment have been taken into account both in the evolution of the CSR policy and the choice of performance indicators. In 2019, Arkema will carry out a further materiality assessment to determine possible changes in stakeholder expectations. This analysis may yield further areas for improvement.

A proactive improvement process

Arkema is engaged in a process to improve its CSR performance, with the aim of being included in the Dow Jones Sustainability Index (DJSI).

The Group's approach and performance in the various areas of CSR are regularly assessed by external stakeholders including customers and SRI rating agencies.

ROBECOSAM We are Sustainability Investing.
FTSE4Good
2017 CSR Rating ecovadis
CDP DRIVING SUSTAINABLE ECONOMIES
EURONEXT vigeo eiris INDICES

THIRD PILLAR

OPERATIONAL EXCELLENCE

DEVELOPING A CULTURE OF OPERATIONAL EXCELLENCE TO ENSURE THE COMPETITIVENESS OF ITS INDUSTRIAL SITES IS A PRIORITY FOR ARKEMA AND A KEY PILLAR OF ITS STRATEGY.

Our 5 commitments

1. Being a top-quartile performer in the chemicals industry for safety and the environment

Arkema continues to improve its safety and environmental performance in line with its 2025 targets.

2. Positioning its main production sites in the top quartile in terms of competitiveness and reliability

Through investments and the rollout of high-performance digital systems, Arkema is constantly improving its industrial facilities and strengthening the competitiveness and reliability of its main production sites.

Thanks to a global goods and services procurement strategy, Arkema also optimizes its operational costs and industrial investments.

To reduce variable costs, Arkema optimizes raw materials consumption and energy efficiency thanks to continuous process improvement developed under its R&D program and targeted investments under its Arkenergy program.

3. Improving the quality of customer service through an optimized supply chain

With its Ambition program whose roll-out was completed in 2017, Arkema reorganized its IT systems to optimize its supply chain and thereby improve its customer service quality. Arkema extended this program in 2018 by setting up a dedicated Supply Chain department, with ambitious targets on improving customer service quality and reducing working capital.

4. Develop the technological innovation policy across different activities

When designing new production units, Arkema implements the latest technological processes it has developed, as well as high-performance digital tools, in order to optimize both the time schedule of its projects as well as their operating costs and capital expenditure.

5. Promote and reinforce employee engagement

In order to sustain its safety and environmental performance, Arkema develops an operational excellence culture amongst employees and promotes their day-to-day actions that participate in the company's continuous progress.

Fixed and variable cost savings achieved thanks to its various actions will enable Arkema to offset at least half of annual fixed cost inflation.

Our approach

To implement its operational excellence program, Arkema launched a continuous progress initiative across all Group businesses and subsidiaries. It covers the following points:

- constant assessment of areas of improvement and progress potential in each of the Group's businesses;
- definition of precise targets for each production site on safety, the environment, reliability, productivity and raw materials consumption;
- monitoring of key performance indicators at each site;
- identification and sharing of best practices across the Group; and
- involving all employees in the process of improving the performance of production units, with the gradual roll-out of the Smart project.

SMART
BUILDING ON OUR PROGRESS TOGETHER

The Smart project enables all employees at all levels to foster continuous improvement in the workplace by giving them the means to make active contributions, be it in terms of improving operational performance or solving problems that they encounter. It is being phased in at a pace of 15 to 20 sites per year, with rollout set to be completed across all Group sites by 2025.

FOURTH PILLAR

DIGITAL TRANSFORMATION

New digital technologies are deeply changing customer interactions and the understanding of our markets' evolution, thereby opening up new growth opportunities for the Group. Against this backdrop of increasing digitalization, Arkema decided in 2018 to create a Digital Transformation department, which reports directly to the Chairman and Chief Executive Officer. The Digital Transformation department is responsible for defining the Group's strategy in this area and speeding up the initiatives being undertaken.

Customer experience

By analyzing the large volumes of available data for market and customer experience to gain a **better understanding** of the needs and expectations of customers and end users, and by targeting its portfolio of solutions and adapting its marketing tools and content to the target market, Arkema can respond **more quickly and more efficiently** to the needs of its customers and prospects. The launch of dedicated websites, specific digital brands and targeted marketing campaigns – in Technical Polymers with Extremematerials.com and the Pebax Powered® brand or in 3D printing as part of the 3D Printing Solutions by Arkema commercial platform – is an inherent part of this strategy and helps to maintain Arkema's reputation as a leading expert in advanced materials. Bostik is also stepping up its consumer-oriented digital strategy with the deployment of e-business campaigns and online tutorials, like the ones which supported the launch of new product Fix & Flash.

Digital plant

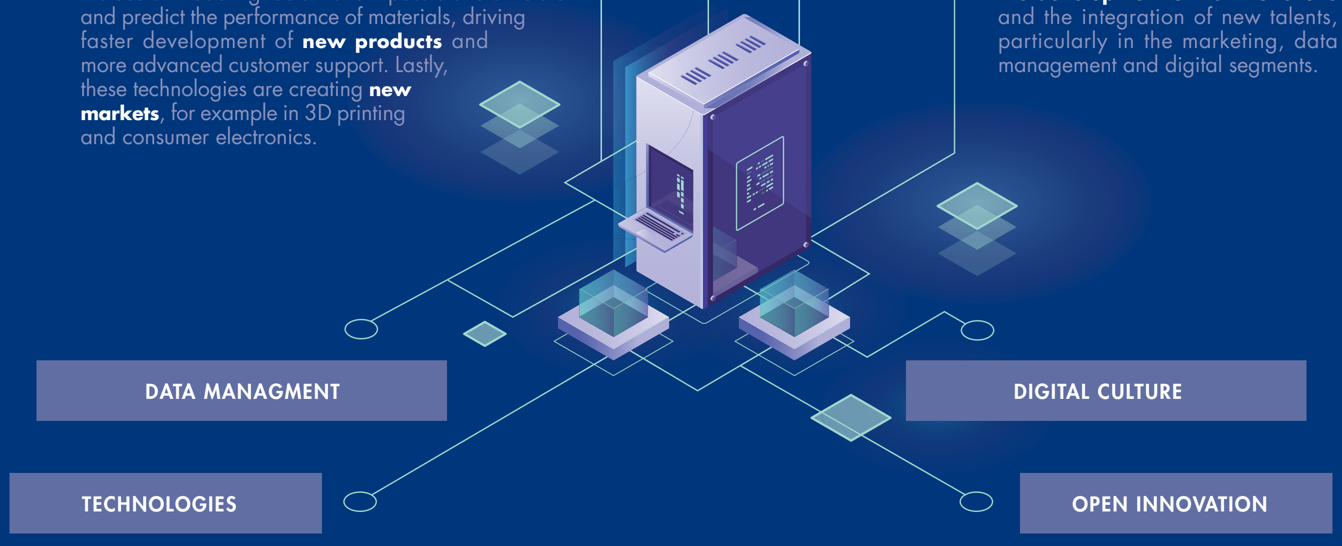
3D and 4D technologies, augmented reality, remote monitoring and management, and predictive maintenance all contribute to enhancing the **competitiveness of industrial sites** and to optimizing production line ergonomics. These digital tools change the way industrial projects are managed, significantly reducing the time required to start up new industrial units and ensuring **digital continuity** between construction and the start of operations. As an example, those new methods were successfully implemented for the construction of a plant at Honfleur, France.

New business models

Increasingly efficient digital tools are significantly changing the way Arkema operates and interacts with its customers, allowing the Group **to develop new servicess**.Thanks to product connectivity, increased traceability and the (sometimes remote) use of technical data, Arkema **is progressively expanding its offer**, going beyond its products, to optimize its customers' operations. In R&D, powerful molecular modeling tools make it possible to simulate and predict the performance of materials, driving faster development of **new products** and more advanced customer support. Lastly, these technologies are creating **new markets**, for example in 3D printing and consumer electronics.

Employee experience

Simplifying and automating certain processes and developing a digital culture and more collaborative spaces help foster **innovation, interaction and agility** within the Group. Beyond its impact on day-to-day work, digitalization also requires an increase in employee training, **the development of new functions** and the integration of new talents, particularly in the marketing, data management and digital segments.



OUR BUSINESS MODEL

Our mission

Develop, as a responsible industrial company, innovative solutions adapted to our customers' main challenges and support them in their quest for sustainable performance

OUR STRENGTHS (1)

COMMERCIAL STRENGTHS

- **Top 3 positions** in our main product lines
- A worlwide presence in **55 countries**
- A balanced portfolio of businesses
- Strong partnerships with leading customers

OPERATIONAL STRENGTHS

- A global footprint with **136 production sites**
- **€5.5 billion** tangible and intangible assets

R&D STRENGTHS

- **6 innovation platforms** focused on the megatrends shaping the future
- **More than 1,600 researchers** in **3 regional R&D centers** worldwide
- A robust intellectual property portfolio with around **9,000 patents**

HUMAN CAPITAL

- **20,000 employees** embracing the Company's values and engaged in its long-term project

FINANCIAL STRENGTHS

- Limited debt with a **net debt to EBITDA ratio** of **0.7x**

OUR VALUE CREATION MODEL

OUR VALUES

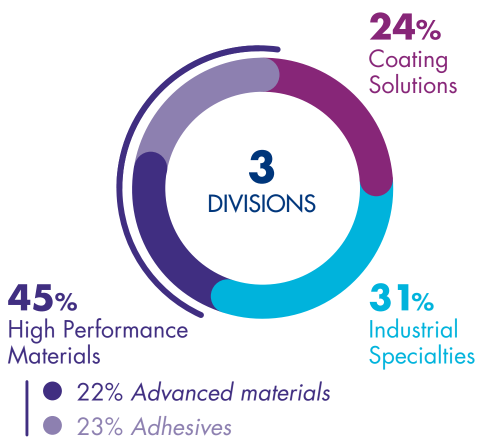
PERFORMANCE

ACCOUNTABILITY

SOLIDARITY

SIMPLICITY

OUR ORGANIZATION



Cross-functional initiatives in commercial excellence, CSR, operational excellence and digital transformation

(1) See page 11.
(2) (REBIT – current taxes) / (net debt + shareholders' equity).
(3) Total recordable injury rate per million hours worked.

OUR PRIORITIES

OFFER
sustainable solutions driven by innovation and product stewardship

- Develop lighter materials
- Increase the use of renewable raw materials
- Facilitate access to safe drinking water
- Contribute to the development of new energies
- Improve the energy performance of buildings
- Contribute to the development of disruptive technologies
- Extend products' lifespan and promote the circular economy

SUPPORT
our customers in their geographic expansion through a policy of targeted investments

ACT
as a responsible manufacturer deeply rooted in host communities

- Ensure personal and equipment safety
- Reduce our environmental footprint
- Contribute to the development of host communities in countries where we operate

OUR AMBITION

Ensure resilient growth and steady cash flow generation, led by specialty businesses that should account for **more than 80% of sales** in 2023

LONG-TERM (2023) FINANCIAL TARGETS

REBIT margin	EBITDA to cash conversion rate
11.5% to **12.5%**	**35%**

Under strict financial discipline

ROCE [2] at **least 10%**

Net debt **< 2x EBITDA**

Solid investment grade rating

LONG-TERM (2025) NON-FINANCIAL TARGETS

Safety
- Total recordable injury rate: TRIR [3] **< 1.2**
- Process safety event rate: PSER **< 3**

Environment (relative to 2012)
- Climate: **50%** reduction in greenhouse gas emissions
- Water: **40%** reduction in chemical oxygen demand
- Air: **33%** reduction in volatile organic compound emissions
- Energy: **15%** reduction in net energy purchases

Employment
- Percentage of women in senior management and executive positions: **23%** to **25%**
- Percentage of non-French nationals in senior management and executive positions: **42%** to **45%**

STRONG AND EFFICIENT **GOVERNANCE**

ARKEMA'S CORPORATE GOVERNANCE COMPRISES A BOARD OF DIRECTORS, WITH A CHAIRMAN AND CHIEF EXECUTIVE OFFICER, A SENIOR INDEPENDENT DIRECTOR, AS WELL AS TWO SPECIALIZED COMMITTEES. THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER IS ALSO SUPPORTED BY AN EXECUTIVE COMMITTEE COMPRISING 7 OPERATIONAL AND FUNCTIONAL EXECUTIVE VICE-PRESIDENTS.

THE BOARD OF DIRECTORS

Arkema's Board of Directors comprises 13 directors, including 6 independent directors, 1 director representing employees and 1 director representing shareholder employees. Independence rate is at 55% (1), in line with the recommendations of the AFEP-MEDEF Code. Except for the director representing employees, directors are appointed for a four-year term by the ordinary shareholders' meeting.

13 DIRECTORS

42% WOMEN (2)

1 SENIOR INDEPENDENT DIRECTOR

97% ATTENDANCE RATE IN 2018

55% INDEPENDENCE RATE (1)

Composition of the Board of Directors at 31 March 2019

		Age	Year of first appointment	Year current term expires	Other directorships in listed companies	Committees: Audit and Accounts	Committees: Nominating, Compensation and Corporate Governance
Thierry Le Hénaff	Chairman and Chief Executive Officer	55	2006	2020	1		
Yannick Assouad		60	2017	2021	2		
Jean-Marc Bertrand	Director representing shareholder employees	61	2018	2022	None		
Marie-Ange Debon		53	2018	2022	2	Chairman	
François Enaud	Senior independent director	59	2006	2019	None		•
Alexandre de Juniac		56	2018	2022	None		•
Victoire de Margerie		55	2012	2019	2		•
Laurent Mignon		55	2006	2019	2		
Hélène Moreau-Leroy		54	2015	2019	None	•	
Thierry Morin		67	2006	2021	1		Chairman
Nathalie Muracciole	Director representing employees	54	2016	2020	None		
Marc Pandraud		60	2009	2021	None		
Fonds Stratégique de Participations	Shareholder with more than 10% of voting rights		2014	2022	4		
represented by Isabelle Boccon-Gibod		51			3	•	

(1) Excluding directors representing employees and shareholder employees, in line with the AFEP-MEDEF Code.
(2) Excluding director representing employees, in line with the AFEP-MEDEF Code.

AN EXPERIENCED AND DIVERSE BOARD OF DIRECTORS

In addition to gender balance in its composition, the Board is attentive to maintaining:

- a diversity of experience, in particular as regards international experience;
- skills complementarity, notably with current and former executives with experience in industry (the chemicals industry in particular), finance, acquisitions and their integration, corporate social responsibility and digital; and
- a majority of independent directors.

Director skills matrix
(excluding the Chairman and CEO)

	CHEMICALS	INDUSTRY	INTERNATIONAL CAREER	CEO	FINANCE	CSR	M&A	DIGITAL
	25%	58%	50%	50%	58%	25%	50%	33%
YANNICK ASSOUAD		■		■	■			■
JEAN-MARC BERTRAND	■							■
MARIE-ANGE DEBON		■		■	■		■	
FRANÇOIS ENAUD				■		■	■	■
ALEXANDRE DE JUNIAC		■	■	■				
VICTOIRE DE MARGERIE	■	■	■				■	
LAURENT MIGNON				■	■		■	■
HÉLÈNE MOREAU-LEROY		■	■		■		■	
THIERRY MORIN		■	■	■	■			
NATHALIE MURACCIOLE	■					■		
MARC PANDRAUD			■		■		■	
ISABELLE BOCCON-GIBOD		■	■		■	■		

THE BOARD'S WORK

The Board of Directors decides the Group's overall business strategy and oversees its implementation.

Its approval is required for:

- industrial **investments** in excess of **€80 million**
- **acquisitions** or **divestments** with an **enterprise value** in excess of **€130 million**
- financial statements, with oversight on the quality of information provided to shareholders and financial markets.

More generally, the Board of Directors promotes long-term value creation by the Group, taking into consideration the social and environmental implications of its businesses.

2 TO ACCOMPLISH ITS MISSIONS, THE BOARD IS SUPPORTED BY **specialized committees**

1. The **Audit and Accounts Committee**, which oversees matters including the quality of internal control and the reliability of information provided to shareholders and financial markets.

2. The **Nominating, Compensation and Corporate Governance Committee**, which issues recommendations on matters including the composition of the Board, the compensation policy for the Chairman and Chief Executive Officer, and good governance practices.

Meetings of the Board and its Committees

BOARD OF DIRECTORS *Including one meeting on Group strategy, with 100% attendance rate*	6 MEETINGS	97% ATTENDANCE RATE
AUDIT AND ACCOUNTS COMMITTEE	6 MEETINGS	100% ATTENDANCE RATE
NOMINATING, COMPENSATION AND CORPORATE GOVERNANCE COMMITTEE	3 MEETINGS	92% ATTENDANCE RATE

Annual assessment of the Board of Directors' operating procedures

An assessment of the Board of Directors' operating procedures was carried out by an external consulting firm in cooperation with the Chairman of the Nominating, Compensation and Corporate Governance Committee and the Secretary of the Board of Directors.

More than 75% of directors consider that the operating procedures of Arkema's Board of Directors continued to improve compared with the last external assessment carried out in 2016.

A large majority of directors who also sit on the Boards of comparable companies consider the operating procedures of Arkema's Board of Directors to be the best, thanks to:

- the quality of discussions led by the Chairman and Chief Executive Officer, the ability to speak freely, as well as the active contributions from all directors; and
- the regular review of the strategy through frequent discussions with management and attendance at a strategy seminar.

GENERAL COMMENTS

In this document:

- the term "Company" refers to the company named Arkema, whose shares are traded on the regulated market of Euronext Paris;
- the terms "Arkema", "Group" or "Arkema Group" refer to the group composed of the Company and all the subsidiaries and shareholdings it holds directly or indirectly; and
- the term "Bostik" refers to the Bostik group.

This document contains forward-looking statements about the Group's targets and outlook, in particular in the section "Profile, ambition and strategy" and section 5.2. Such statements may in certain cases be identified by the use of the future or conditional tense, or by forward-looking words including but not limited to "believes", "targets", "expects", "intends", "should", "aims", "estimates", "considers", "wishes", "may", etc. The Group notes that all its targets are set under the assumption of standard market conditions and in line with current International Financial Reporting Standards. It also notes that these statements are based on data, assumptions and estimates deemed reasonable by the Group at the date of this document and within the time frame in question, in particular with regard to future development of global demand, conditions relating to raw material and energy costs, balance between supply and demand for products marketed by the Group and their price levels, and currency exchange rates. They may change or be amended due to uncertainties linked to climate conditions or to the economic, financial, competitive and regulatory environment in which the Group operates. In addition, the business activities and the Group's ability to meet its targets may be affected if one or more of the risks described in section 2.1 of this document were to materialize. Furthermore, achievement of the targets implies the success of the strategy presented in the section "Profile, ambition and strategy" of this document.

The Group does not undertake to meet and does not give any guarantee that it will meet the targets described in this document.

Investors are urged to pay careful attention to the risk factors described in section 2.1 of this document. The materialization of one or more of these risks could have an adverse effect on the Group's activities, condition, financial results or targets. Furthermore, other risks not yet identified or considered as not material by the Group could have the same adverse effect.

This document also contains information on the markets in which the Group operates. This information is derived in particular from research produced by external organizations. Given the very rapid pace of change in the chemicals sector in France and the rest of the world, this information may prove to be erroneous or out of date. Accordingly, trends in the Group's business activities may differ from those set out in this document.

For 2018, the Company has prepared annual financial statements and consolidated financial statements for the period between 1 January and 31 December. These financial statements are presented in chapter 5 of this document. Chapter 5 of this document provides a comparative analysis between the 2018 consolidated financial statements and the 2017 consolidated financial statements.

The alternative performance indicators used by the Group are defined in note C.1 of the notes to the consolidated financial statements in section 5.3.3 of this document.

A glossary defining the technical terms used in this document can be found at the end of this document.

INNOVATION AND BUSINESS OVERVIEW

1

The different parts constituting the annual financial report are identified in the table of contents by the pictogram AFR

1.1 INNOVATION STRATEGY

Clearly defined in a Group policy in 2018, innovation is a strategic pillar in Arkema's targeted growth strategy and a key component in its contribution to sustainable development. Innovation enables Arkema to:

- design and develop products and solutions while continually improving their performance;
- anticipate market trends, by capitalizing on the Group's commercial excellence, and develop today the products its customers will need in the years ahead; and
- enhance the Group's operational excellence by providing production facilities with new technologies and processes, thereby enabling the Group to produce safely and competitively while limiting its environmental footprint, in line with its commitment to being a responsible chemicals producer.

Whether aimed at manufacturing technologies, products or their applications, innovation makes it possible to create sustainable solutions.

This strategy of growth through innovation is supported by:

- a dedicated organization;
- a portfolio of research and development (R&D) projects;
- patent and trademark management;
- a research incubator;
- a collaborative innovation ecosystem; and
- development of digital.

1.1.1 A dedicated organization

The Group's innovation structure is organized in a way that allows all stakeholders to contribute. It is based on:

- a Research and Development department that reports directly to the Chairman and Chief Executive Officer. The R&D department coordinates all of Arkema's research programs worldwide, the development of long-term research platforms and the implementation of partnerships. It also ensures that all innovation projects funded by Arkema's various Business Lines and businesses are scientifically and technologically relevant and in line with the Group's overall strategy. Lastly, it creates and steers corporate R&D programs and identifies disruptive development opportunities and new research areas;
- a Scientific Committee comprising representatives from the Sustainable Development department, the Process department, the Intellectual Property department, the Business Lines' global R&D departments, the scientific departments and the Group's main R&D centers; and
- research centers spread across the three regional hubs (Europe, North America and Asia).

The scientific and technological knowledge of Arkema's R&D teams is further strengthened by world-renowned scientific advisors from the academic world, as well as numerous academic and industrial partnerships.

In 2018, R&D expenditure totalled €237 million, representing 2.7% of Group sales. R&D expenditure as a percentage of sales varies between businesses. It is notably higher in specialty areas and particularly in the High Performance Materials division, where R&D helps find solutions for customers and respond to the major sustainable development trends. In 2018, Arkema's R&D teams comprised more than 1,600 researchers, spread across three regional research and innovation hubs.

R&D efforts break down among Arkema's three divisions and its corporate research program as follows:

- the corporate research program represents 10% of Arkema's R&D expenses.

  Defined by the R&D department and subject to the approval of Arkema's Executive Committee, the program aims to prepare the breakthrough innovations that are driven by megatrends and will be developed commercially by the Group's divisions at a later stage;
- the High Performance Materials division accounts for 51% of Arkema's R&D expenses.

  Its R&D efforts focus in particular on the materials of tomorrow and the techniques for assembling them. Innovations combining performance with sustainable development include materials made from renewable feedstocks, materials and adhesives with a low environmental impact, lightweight materials for transportation as well as structural adhesives used to join these materials, and functional adhesives for construction and industry. The High Performance Materials division fuels its growth by expanding its product range and by adapting the performance and functions of its products to new market demands. The division's technical excellence is reflected in the strength of brands such as Rilsan®, Pebax®, Luperox®, Kynar®, Sartomer® and Bostik®, and in the widespread consumer awareness of retail brands like Sader® and Quelyd®;

- the Industrial Specialties division represents 22% of Arkema's R&D expenses.

  Its R&D objectives focus on ensuring that the division's processes are competitive and finding new applications and end markets for its products. One of its primary objectives is to continuously improve its main processes, such as those used for fluorochemicals, thiochemicals and hydrogen peroxide, in order to make them safer, more reliable, more productive and therefore more competitive, while minimizing their environmental impact. To this end, R&D teams study the benefits of new raw materials, test new catalysts and reactor types and develop new synthesis pathways. They also contribute to the development of new products such as the new HFO low global warming potential (GWP) refrigerants; and
- the Coating Solutions division accounts for 17% of Arkema's R&D expenses.

  Its R&D teams develop innovative solutions for the coatings market while combining technical performance with sustainable development. In addition to working closely with customers to provide responsive technical support, the division's R&D teams also carry out process research, which enables them to optimize production costs and produce new formulas on an industrial scale.

1.1.2 A portfolio of research and development projects

Global population growth is already driving up demand for drinking water and energy, as well as in the areas of health and well-being or transportation. It is also having an impact on climate change, biodiversity and the availability of resources. Against this backdrop, and based on a forward-looking analysis of global megatrends, the Group is driving growth through innovation via a portfolio of R&D projects that provide solutions to economic and social challenges and contribute to the United Nation's 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs). For further details, see section 4.1.1 of this document.

The Group's analysis led to the definition of the following six cross-business platforms, which target areas with strong development potential and form the base of its portfolio of R&D projects:

- bio-based products;
- lightweight materials and design;
- new energies;
- water management;
- electronics solutions; and
- home efficiency and insulation.

In addition to these six market-oriented innovation platforms, the Group also has a number of technology platforms focused on generating innovative production methods that promote the principles of eco-design. These platforms are described in section 1.1.2.7 of this chapter.

The innovation work carried out within these platforms is supplemented by the Business Lines' ongoing efforts to improve their product ranges, in order to meet market and customer expectations.

Arkema's corporate social responsibility dimensions are integrated into the management of all its R&D projects. When identifying the risks and opportunities of each project, Arkema takes into account the entire value chain, from raw materials to end products, as well as the UN Sustainable Development Goals. For further details, see section 4.2.3 of this document.

1.1.2.1 BIO-BASED PRODUCTS PLATFORM

Global population growth, rising living standards and industrial intensification are all driving an increase in the use of fossil fuels and therefore contribute to global warming. Mindful of the need to reduce the use of non-renewable fossil resources, Arkema has long been involved in the development of bio-based products, thereby supporting the United Nations' SDG 12: "Ensure sustainable consumption and production patterns".

Arkema has developed a wide range of bio-based polyamides derived from the castor oil plant, which is mainly cultivated in water-scarce regions of India. These unique products are used in a wide variety of markets, including the automotive, energy, optics and electronics markets.

Arkema's portfolio of bio-based polyamides has expanded considerably since production began over 70 years ago. With the Pebax® Rnew range, for example, Arkema has developed thermoplastic elastomers that deliver outstanding energy return, lightness, shock resistance and durability. Offering a very broad spectrum of flexibility, this range of polymers has become the standard for ski boots and sport shoe soles.

FOCUS

The Pebax® elastomer stays ahead of the game

70% of the soccer players involved in the 2018 World Cup in Russia had Pebax® in the soles of their shoes. Pebax® foam helps to make shoes lighter and outer soles thinner, without compromising on rigidity and robustness. Pebax® Powered shoes are also favored by the world's top soccer players because they offer exceptional resistance to repeated deformation and bending; their soles can be bent a million times without deterioration. The other key advantage of elastomers is their ability to deliver maximum energy return.

The Group's expertise and innovation in renewable polyamides enables it to offer:

- products that are both flexible and heat-resistant, such as the Rilsan® HT range for the transportation market. These polyamides offer outstanding performance, enabling them to replace metal parts to help lighten vehicles and, by extension, reduce vehicle emissions;
- highly transparent materials such as Rilsan® Clear Rnew, for applications in the eyewear industry;
- rigid materials designed to serve as reinforcements in composites, such as Platamid® or the Rilsan® XD range designed for the numerous structural parts found in telephones, tablets and other mobile devices; and
- Orgasol® ultrafine polyamide powders, which are primarily used in cosmetics for their sensorial properties.

Arkema has also developed a special sulfur-based intermediate for the production – by its partner, South Korea-based CJ CheilJedang – of L-methionine, a methionine from renewable sources produced by replacing the use of propylene with a unique bio-fermentation process. These innovations have been implemented at the Kerteh production facility in Malaysia. The remarkable results obtained have led Arkema to study enzyme catalysis as a synthesis process for other products in its portfolio (see section 1.1.5 of this chapter).

The Group's ongoing commitment to bio-based products is demonstrated by the fact that products at least 20% made from renewable raw materials account for around 9% of Group sales.

1.1.2.2 LIGHTWEIGHT MATERIALS AND DESIGN PLATFORM

Global population growth, rising living standards, increased transportation and urbanization, as well as the faster pace of industrialization in emerging markets are all factors that contribute to global warming. By developing solutions that can be used to reduce the weight of land and air vehicles and thereby lower fuel consumption, Arkema contributes to the United Nations' SDG 13: "Take urgent action to combat climate change and its impacts".

The polymers developed by Arkema are ideally positioned to support this trend, be they high-temperature polyamides designed to replace certain metal components in car engines (Rilsan® HT), structural adhesives that substitute for metal attachment systems, or composite materials.

3D printing also helps to meet this goal. By enabling the design of complex parts, 3D printing technology simplifies assembly and makes it possible to replace the metal parts traditionally derived from smelting or tooling, with a subsequent reduction in weight. Additive manufacturing optimizes design, driving a reduction in the raw materials used and in the losses incurred during the prototyping phase.

Composite materials

The development of thermoplastic composite materials, and their assembly with adhesives, is a good illustration of the research platform's work. Current carbon- or glass-fiber-based composites make heavy use of thermoset polymers, for which the cross-linking process is irreversible. These resins present two limitations: they cannot be recycled and their production cycle time makes them difficult to use in high throughput industries such as automotive.

To address this challenge, Arkema has developed thermoplastic-polymer-based composites with innovative resins (Elium®, Kepstan® and Rilsan®), which are adapted to the specific needs of various markets. The recyclable Elium® resin, for example, is used in applications in the automotive and wind turbine industries, while Kepstan® PEKK makes it possible to obtain particularly hard-wearing and flame-retardant parts that meet the stringent specifications of the aerospace industry. In terms of performance, replacing steel parts with Elium® substitutes is expected to deliver weight savings of between 30% and 50%.

FOCUS

Hexcel and Arkema signed a strategic alliance in 2018 to develop thermoplastic composite solutions for the aerospace sector combining the expertise of Hexcel in carbon fibers and that of Arkema in polyetherketoneketone (PEKK). The partnership aims to develop carbon fiber-reinforced thermoplastic tapes to produce lightweight parts for future generations of aircraft. In addition to lightweighting, these new composites will provide lower cost and faster production speeds for customers in the aerospace and defense sectors. As part of this partnership, a joint research and development laboratory has been set up in France.

In addition, Arkema's R&D teams are assessing the processes for recycling the polymers used in thermoplastic composites, which will enable users to recycle their waste via dedicated channels.

3D printing

The Lightweight materials and design platform places particular emphasis on additive manufacturing (3D printing) technologies, which are enjoying fast growth in the aerospace, electronics, automotive and healthcare industries. The Group's product range has grown significantly more diversified in recent years and now includes Rilsan® polyamide 11 powders, Kepstan® PEKK powders and UV curable N3xtDimension® resins. In this way, Arkema has stepped up development to occupy a unique position, with a range that now covers all additive manufacturing technologies: powder bed fusion, filament extrusion and UV curing.

In 2018, the Group opened a center of excellence dedicated to 3D printing at its US Sartomer facility in Exton, Pennsylvania (PA). Arkema has two other R&D centers of excellence dedicated to the development of advanced materials for additive manufacturing: one in King of Prussia, PA in the United States for filament extrusion technologies and one in Serquigny, France for powder bed fusion technologies. In addition, Arkema launched a commercial platform dedicated to 3D printing. Named "3D Printing Solutions by Arkema", the new platform aims to meet the needs of end customers by offering them development partnerships, a unique range of materials and services and Arkema's application-oriented expertise.

1.1.2.3 NEW ENERGIES PLATFORM

The development of new energies is a megatrend driven by the world transition to a less fossil-fuel-dependent economy. Through its platform and the innovative solutions it generates, the Group is contributing to the fight against climate change and to the United Nations' SDG 7: "Ensure access to affordable, reliable, sustainable and modern energy" and SDG 13: "Take urgent action to combat climate change and its impacts".

Innovative polymer materials and chemicals are used to varying degrees in the new energy solutions currently available, including rechargeable batteries, photovoltaic panels, heat-transfer fluids which transport the heat generated by solar energy, wind turbines and solar thermal power plants.

Thanks to its technological expertise, Arkema offers these various markets a number of innovative solutions.

Solutions for batteries

Thanks to innovation in materials, binders and electrolytes, Arkema has a range of solutions designed for use in the development of batteries.

The Kynar® fluoropolymer, for example, is used in lithium-ion batteries for several applications – in electrodes as the binder for the active phase and as a protective coating for the separator. These products play a very important role in the battery's lifespan and performance. They are therefore the focus of continuous innovation.

Lithium salts, synthesized from the Group's various chemistries are also used inside batteries, to move lithium ions from one electrode to the other. Battery manufacturers need lithium salts, like the Foranext® electrolyte, that can withstand the increasingly demanding conditions of use, including high temperatures and rising electrochemical potential.

Materials for photovoltaic cells

Photovoltaic cells are made up of a number of highly technical organic materials that protect the silicium layer from outside elements. Arkema harnesses its performance materials expertise to bring this market a large number of innovations, such as:

- Apolhya® grafted polyolefins, which are used for the encapsulation or protection of photovoltaic cells;
- Kynar® fluoropolymers, for backsheet protection; and
- Bostik Vitel® polyester adhesives, which are used for binding photovoltaic backsheets.

Heat-transfer fluids for solar energy applications

The Jarysol® fluids developed by the Group are particularly well adapted to the transfer of heat from concentrated solar power plants.

Materials and products for the wind turbine industry

The Elium® resin developed by Arkema is a lightweight thermoplastic composite that notably enables the fabrication of 25-meter-long wind turbine rotor blades. The resin's recyclability represents a major advantage for wind turbine manufacturers. The technology has won an award at JEC Asia.

1.1.2.4 WATER MANAGEMENT PLATFORM

Population growth and increased urbanization are having a major impact on the availability of water resources and limiting access to drinking water, the focus of the United Nations' SDG 6: "Ensure access to water and sanitation for all". Through its research, Arkema contributes to this goal by developing (i) a product range specifically aimed at water treatment, transportation and filtration and (ii) technologies and processes for more effective management of the water use and discharges associated with its industrial processes. To the latter end, a global project to improve water management, known as Optim'O, was launched at Arkema several years ago (for further details, see section 4.3.3 of this document).

In terms of product range, acrylic acid serves to manufacture polyacrylates that are used in water treatment plants to ensure the flocculation of suspended solids. Arkema is also pursuing its developments to use more Albone® hydrogen peroxide to disinfect cooling systems or as a water treatment product for drinking water and swimming pools. Unlike the chlorinated products traditionally used in water treatment, this solution avoids chlorinated water discharges.

Kynar® resins are used in filtration applications to treat wastewater or to make water suitable for drinking. They offer much finer filtration of suspended solids, bacteria and viruses, and a higher (+20%) volume of water filtered for constant energy consumption. They also double the lifespan of certain filtration systems, from five to ten years.

1.1.2.5 ELECTRONICS SOLUTIONS PLATFORM

The numerous innovations for electronics, and particularly mobile devices, contribute to the United Nations' SDG 9: "Build resilient infrastructure, promote sustainable industrialization and foster innovation".

Through its technical polymers range (specialty polyamides and fluoropolymers), Arkema offers innovative solutions for the mobile device market, which includes smartphones and tablets. These solutions relate to the internal structural parts of these devices, which are required to be increasingly thin and made using the same simple injection molding process, as well as offering ultra-high rigidity, and to the external parts, which need to be stain and shock resistant. Arkema proposes materials that meet these increasingly demanding requirements.

Arkema's Piezotech® piezoelectric polymers, which are described in section 1.1.4 of this chapter, make it possible to meet the needs associated with the fast-growing Internet of Things (in consumer electronics, such as smartphones and virtual reality devices) and with increased industrial digitization (connected industrial sensors).

One of this platform's most ambitious projects concerns directed self-assembly (DSA), where block copolymers derived from the Group's extensive know-how are used for nanoscale semiconductor etching. Nanolithography enables these copolymers to self-assemble at the scale of several dozen nanometers to form a variety of customizable geometric patterns. It is therefore possible to create a desired nanostructure and thereby obtain extremely thin electronic nanocomponents.

The Group produces these copolymers, meeting the quality standards required by the electronics industry, on a pilot production line at its Lacq site in France.

Thanks to these positive results, Arkema has signed a special R&D and marketing partnership with Brewer Science, a world leader in materials for the microprocessor industry. In 2018, Brewer Science unveiled its OptiLign™ DSA materials range developed in collaboration with Arkema. Numerous partnerships have since been developed with major semiconductor players, and the final phases of certification are under way.

1.1.2.6 HOME EFFICIENCY AND INSULATION PLATFORM

Energy efficiency, health, comfort and environmental footprint are key concerns in developing the building of the future, with consumer demand in the field regularly becoming greater and more complex. The responses provided to these needs contribute to the construction of sustainable cities and communities, the focus of UN SDG 11. Mindful that this trend is likely to continue over the long term, Arkema has made home efficiency and insulation a key focus of its R&D strategy.

Arkema offers solutions for the thermal insulation of buildings, which is achieved by combining vacuums or air, which have low thermal conductivity, with materials that provide mechanical strength, such as glass, metal and wood. In particular, Arkema markets a range of high-performance adhesives and sealants, such as adhesives for making double-glazed windows and adhesives for the manufacturing of doors and insulation panels.

This expertise continues to be actively developed within Bostik, where it forms a significant R&D focus. Particular attention is paid to formulations where the Company proactively limits the use of additives with unfavorable toxicity profiles. For example, the most recent floor covering adhesives, Mipaflix®, are phthalate- and solvent-free and have sufficiently low volatile organic compound (VOC) emissions to obtain an A+ rating, as well as EC1 Plus, LEED and BREEAM certification.

The coating resins business also contributes to the development of healthier, more environmentally friendly homes. Most new grades of acrylic and alkyd emulsions, which are developed by this business, can be used without the addition of a coalescing agent, enabling customers to prepare very low VOC coatings. Some grades also capture formaldehyde. In addition, the new binders for exterior paints offered by Arkema have enhanced dust and water resistance and excellent stability with regard to environmental conditions. Thanks to these improvements, consumers can use the coatings for a number of years, thereby reducing the environmental impact of maintenance and replacement works.

The innovation platform also benefits from the development of the Smart House by Arkema, which is located at the Venette R&D site in France. This one-of-a-kind laboratory-house was designed to bring together players in construction to cooperate on innovation and sustainable development. The purpose of the concept house is to test, develop and approve new solutions to major challenges facing the construction industry, particularly energy efficiency, environmental footprint and the health and comfort of building occupants. Since its creation, the project has offered a real-scale illustration of several innovative solutions, including solutions that improve occupants' acoustic comfort and new adhesive concepts that make it possible to recycle plastic flooring by simplifying the replacement process and reducing the associated costs. The improved functionality of construction components such as walls and floors is also under review. The approach developed at the Smart House is part of the Group's open innovation ecosystem, where input from such diverse participants as economists, rental companies, architects, customers, universities and suppliers provides a better understanding of future needs.

1.1.2.7 TECHNOLOGY PLATFORMS

Innovation in the area of manufacturing technologies helps to improve reaction yield and reduce the environmental footprint of manufacturing processes by reducing energy and water use, limiting air emissions and effluent discharges, and minimizing waste generation. Arkema has thus deployed several technology platforms that enable it to contribute to the United Nations' SDG 12: "Ensure sustainable consumption and production patterns". These platforms focus primarily on:

- the use of the latest innovations derived from molecular modeling to more accurately predict chemical reactions;
- new solutions that intensify the separation of the primary product from the reaction by-products;
- the development of online analyses that monitor changes in the reaction process and the purity of products without the need for human intervention to obtain samples, thereby avoiding drifts in the production and ensuring consistent product quality; and
- the use of innovative technologies to recycle effluents and/or recover the chemical components present.

1.1.3 Patent and trademark management

Arkema uses patents to protect the innovations generated by its research and development efforts, whether in relation to its manufacturing technologies or its products. Intellectual property rights also enhance the value of the Group's products and brands in the eyes of its customers and enable it to be recognized as one of the most innovative companies in its industry. As a result, the Group's portfolio of patents and trademarks represents a key asset for its business.

1.1.3.1 PATENTS

Protecting the Group's technologies, products and processes with patents is key in optimally managing its business.

Consequently, Arkema files patent applications in its main markets in order to protect new chemical compounds, new high technical performance materials, new synthesis processes for major industrial products and new product applications.

The number of patents granted and the number of patent applications filed annually are good indicators of R&D investment and performance. In 2018, Arkema filed 244 priority patent applications. At 31 December 2018, it held 8,963 patents and had 5,760 patent applications pending [1]. The high ratio of pending patent applications to patents filed per year is due to the lengthy examination process.

Patent protection in countries where Arkema seeks it is typically granted for the maximum legal duration of twenty years, calculated from the application date. The level of protection varies from one country to another, depending on the patent type and scope. Arkema seeks patent protection in many countries and regions, primarily in Europe, China, Japan, South Korea, India, North America and South America.

Arkema actively protects its markets. To this end, it monitors competitors and takes action against any third-party infringements of its patents. The Group also challenges third-party patents that are granted without justification and takes legal action to have them declared null and void.

The expiration of a basic patent for a product or process can lead to increased competition as other companies bring new products to market. In some cases, however, the Group may continue to benefit commercially from a patent after its expiration by leveraging expertise related to a product or process or by filing for application or improvement patents.

Arkema also has a policy of obtaining and granting patent licenses to meet operating requirements. For inventions by employees, the Group continues to use the system that it implemented in 1989, whereby it grants additional compensation to employees whose inventions have given rise to a commercially exploited patent.

1.1.3.2 TRADEMARKS

Trademark protection varies from country to country. While in most countries, trademark rights are the result of registration, in some, they may be based on usage regardless of registration. Trademark rights are obtained by registering the trademark nationally, internationally or even supra-nationally in the case of

(1) All patent applications filed as part of a centralized process – with the World Intellectual Property Organization (WIPO), for example – are counted as a single application, even though the application may result in several patents being granted depending on the number of countries subsequently selected.

EU trademarks. Registrations are usually granted for a ten-year term and can be renewed indefinitely.

Arkema implements a centralized, dynamic trademark registration policy that draws on a worldwide network of intellectual property advisors.

In particular, Arkema holds the trademark rights to its main products. Examples from Arkema's flagship brands include Pebax®, Rilsan®, Forane®, Carelflex®, Evolution®, Altuglas®, Plexiglas® (which is used exclusively on the American continent), Bostik®, Sader® and Quelyd®. Arkema has also trademark protected the names of its latest innovations, such as Kepstan®, Elium® and N3xtDimension®.

Mindful of the importance of its brand portfolio, Arkema monitors trademark registrations by competitors in similar business sectors and has a policy of taking legal action against infringements.

1.1.4 Research incubator

The aim of the research incubator is to bring new products to market by carrying out disruptive innovation projects.

These projects are characterized by:

- their anticipation of changes in technologies or markets;
- significant project risks but high value added if successful;
- a market approach closely coordinated with that of the relevant Business Lines (one project may involve several Group Business Lines); and
- a portfolio that is balanced between projects that are expected to be brought to market within five years and projects with longer timelines.

Since its creation, it has notably developed nanostructured PMMA for automotive glazing under the Altuglas® ShieldUp brand and piezoelectric polymers via the Piezotech subsidiary. Working closely with academic and industrial partners, Piezotech is developing applications for electroactive polymers, notably in the area of haptics for virtual reality devices and sensors for consumer electronics.

The incubator was also behind the 2016 launch of Arkema's thermoplastic composites range, which includes:

- the Elium® range of solutions for infusion molding or resin transfer molding (RTM) technologies; and
- the Polystrand® range of continuous glass-fiber-reinforced thermoplastic solutions in tape or sheet form, for thermo compression, thermo-stamping and lamination technologies.

The incubator also developed PEKK, a new polymer withstanding ultra-high temperatures, under the Kepstan® brand, for which production began in 2010. Production capacities were doubled in France in 2017 and a world-scale PEKK plant at the Mobile, Alabama site in the United States, started production early 2019. These investments will help to meet growing demand in the carbon fiber reinforced composites and additive manufacturing (3D printing) markets (for further details, see section 1.1.2.2 of this chapter).

1.1.5 A collaborative innovation ecosystem

The aim of collaborative innovation is to jointly develop innovative solutions with both academic research teams and industrial partners (customers, suppliers and even competitors). This open innovation approach takes the form of participation in industrial research chairs, sharing of laboratories with recognized research institutions, public-private research partnerships and industrial partnerships. The ecosystem also includes collaboration with start-ups or innovative companies, equity investments in such companies or the acquisition of specific technologies.

RESEARCH CHAIRS, SHARED LABORATORIES AND PARTNERSHIPS WITH UNIVERSITIES

The R&D department has forged numerous upstream partnerships with academic and scientific institutions, in the form of research chairs, shared laboratories, collaborative projects and doctoral and post-doctoral research contracts. The contribution made by these external experts enables the Group to advance its research in scientific areas related to its R&D projects.

In 2018, Arkema joined forces with France's *École polytechnique* and its Foundation to create an international research and teaching chair dedicated to innovative materials named "Design and modeling of innovative materials". Theoretical and experimental modeling of materials and processes is a key topic for the chemicals industry. This multidisciplinary technique goes beyond materials chemistry to look at the physical and mechanical factors at play during product manufacturing and use. Arkema together with *École polytechnique* and its Foundation all aim to leverage innovation in order to meet the energy, technological, industrial and environmental challenges facing the world today and in the future. The research and development topics to be explored by the chair include polymer materials, thermoplastic composites and adhesives, with a particular focus on the relationship between process, structure and properties and on the optimization of mechanical properties and processes.

In Asia, Arkema forged a partnership with Monash University in Kuala Lumpur, Malaysia. The aim is to enhance understanding of biocatalysis, a discipline that could lead to more efficient reaction processes than those achieved with traditional chemistry or the identification of alternatives to certain raw materials used in the production of sulfur products. The creation of this center for research into biocatalysis is in line with the Group's commitment to develop increasingly sustainable solutions.

INDUSTRIAL PARTNERSHIPS AND TECHNOLOGY ACQUISITIONS

Arkema also forms downstream partnerships with industrial partners as part of joint research programs with customers, suppliers and even competitors to develop new products and technologies. As part of this, Arkema establishes many research partnerships with customers in order to better understand market demand and to accelerate the development and time-to-market of innovative technical solutions.

The R&D department has a technology acquisition policy that targets high value-added SMEs and start-ups and supports them in their development process, allowing them to grow in an application-oriented environment thanks to Arkema's resources and expert staff. These equity interests enable the Group to position itself in the highly-innovative product and high-tech markets.

FOCUS

In September 2018, Arkema and Barrday Inc. announced the creation of a joint venture, Barrflex® TU, to manufacture and market carbon fiber and specialty polymer tapes for the growing oil and gas market. These high performance thermoplastic composite solutions will deliver substantial improvements in terms of weight reduction (replacement of metal) and corrosion resistance for the flexible pipes used in the deep offshore and in next-generation onshore operations.

1.1.6 Development of digital

A Digital Transformation department was created in 2018 to set the Group's strategy in this field and drive more widespread use of the innovations associated with digital technology. This digital transformation concerns many of the Group's activities.

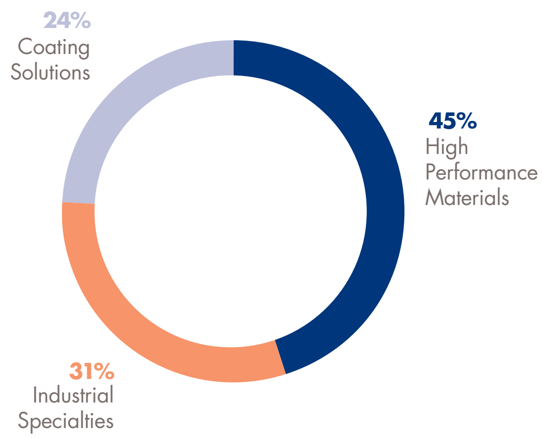
In relation to the initiatives launched as part of the digital transformation, the R&D department contributes its expertise in data management and digitization, modeling, software, and the associated computing power, algorithms and their interpretation. These tools enhance the effectiveness of innovation in the Group's operating and industrial processes and in the development of new processes, products and materials.

1.2 BUSINESS OVERVIEW

Arkema is organized into three divisions according to the similarity of their activities:

- the High Performance Materials division for predominantly application-oriented high added value specialty activities;
- the Industrial Specialties division comprising various intermediate chemical activities and some of the corresponding downstream activities; and
- the Coating Solutions division, which combines activities relating to coatings (decorative paints, industrial coatings, etc.), with upstream integration in acrylic monomers.

The breakdown of 2018 sales [1] by division was as follows:



The divisions are made up of nine Business Lines, which may group together several businesses. The managing directors of the Business Lines or businesses are responsible for their own sales, marketing and customer relations, results, cash flows (working capital, capital expenditure, etc.), manufacturing and research. They each report to an operational Executive Vice-President who is also a member of the Executive Committee, with the exception of the Bostik Executive Vice-President, who is a member of the Executive Committee and, as such, reports directly to the Chairman and Chief Executive Officer (for further details, see section 3.2.2.2 of this document).

The simplified organization chart below, effective at 31 December 2018, shows the Business Lines in each division.

High Performance Materials	Industrial Specialties	Coating Solutions
Bostik	PMMA	Acrylics
Technical Polymers	Thiochemicals	Coating Resins and Additives
Performance Additives	Fluorogases	
	Hydrogen Peroxide	

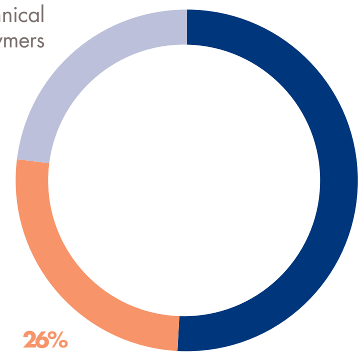
(1) *Excluding Corporate.*

1.2.1 High Performance Materials

1.2.1.1 KEY FIGURES

(In millions of euros)	2018	2017	2016
Sales	3,970	3,830	3,422
EBITDA	640	632	570
Recurring operating income	481	474	416
Recurring capital expenditure	168	168	173

1.2.1.2 BREAKDOWN OF DIVISION SALES BY BUSINESS LINE (2018) (1)



1.2.1.3 OVERVIEW OF THE DIVISION'S BUSINESS

The High Performance Materials division brings together two major drivers of Arkema's future growth: adhesives and advanced materials, which comprise the Technical Polymers and Performance Additives Business Lines.

The businesses in this division share the same objective of serving their various niche markets with innovative, high value-added technical solutions that meet their customers' needs.

Arkema holds leadership positions in most of these product lines, notably for adhesives, polyamides 10, 11 and 12, PVDF, molecular sieves and organic peroxides, and sells many of its products under widely recognized brands. The Group also markets oilfield chemicals and surfactants.

Arkema services these markets worldwide thanks to an industrial footprint on three continents.

The key success factors for the High Performance Materials division lie in its ability to offer innovative solutions from R&D, to develop new, high value-added products and to leverage the potential offered by growing regional markets, particularly in Asia, where Arkema has expanded significantly in the past few years. Brand recognition (Bostik®, Kynar®, Rilsan® and Sartomer®) and strong relationships with customers that are the leaders in their areas of expertise are also key competitive strengths.

Over the coming years, Arkema will continue to develop the division around Bostik and advanced materials, which should account respectively for more than one third and more than 25% of Arkema's total sales in 2023. In particular, Arkema intends to participate in the consolidation of the attractive but still fragmented adhesives market and will continue to invest in advanced materials, which offer significant opportunities both for innovation in the areas of lightweight materials, bio-based polymers and consumer goods design and for expansion in fast-growing economies. The major investment project in the bio-based polyamide 11 chain in Asia and the 30% increase in Sartomer's production capacity in China illustrate well this strategy.

Bostik (23% of Arkema sales in 2018)

Products and markets

With little cyclicality and capital intensity, the adhesives market offers steady growth and numerous opportunities for consolidation in a still very fragmented market.

Since the acquisition of Bostik in February 2015, Arkema manufactures and markets adhesives and sealants for construction and industrial applications worldwide, with 58 production units in Europe, North America and Asia, operations in 50 countries, and 3 regional R&D centers.

For several years now, Bostik has been working to strengthen its global Bostik® Smart Adhesives brand. Bostik has a number of well-known local brands that help secure customer loyalty, such as in the construction and consumer goods industries Sader®, Quelyd®, Evo-Stik®, Mem®, Fortaleza®, XL Brands® and Den Braven®.

(1) In 2017, division sales by Business Line broke down as follows: 23% for Technical Polymers, 26% for Performance Additives and 51% for Bostik.

Demand for adhesives and sealants worldwide is estimated at some €55 billion [(1)], spread across:

- industry (55%), which encompasses a wide range of end markets such as assembly, tapes and labels, packaging, transportation, non-woven for the hygiene and personal care industries and electronics;
- construction (34%), which includes wall and floor surface preparation products, adhesives for tiles, walls, floors and ceilings, and waterproofing solutions; and
- consumer goods (11%), which brings together adhesive solutions for a wide variety of applications such as repair work, assembly, decoration and renovation.

Geographically, demand breaks down as follows [(1)]:

- North America accounts for around 28% of global demand, with expected average annual growth of 2.5% to 3%;
- Europe accounts for around 31% of global demand, with expected average annual growth of 1.5% to 2%; and
- Asia and the rest of the world make up around 41% of global demand, with expected average annual growth of 4% to 5%.

Overall, the global adhesives market is expected to grow by between 3% and 3.5% on average over the next few years. This trend is likely to be driven by the replacement of traditional mechanical assembly systems and by new solutions that reduce the weight of materials, improve energy efficiency in buildings and contribute to the development of new energies. Other factors driving the market include significant growth in adhesives for the non-woven fabric used to make baby diapers, feminine hygiene products and adult incontinence products, and the strong momentum in emerging economies, where consumption of adhesives *per capita* is currently much lower than in Europe or the United States. Lastly, technology and experience are key in this market, which is characterized by high barriers to entry such as customer relations built on proximity and trust, and a portfolio of well-known brands.

In addition to Bostik, the main international players in the market are Henkel, Sika and HB Fuller. However, the industry is still very fragmented with a large number of local players, offering numerous opportunities for consolidation through small- or medium-sized bolt-on acquisitions.

Bostik holds a leadership position in several end markets, including:

- non-woven for hygiene and personal care products: in this global market characterized by a limited number of players, Bostik is estimated to be among the world's top three and the leader for specialty products thanks to its technological expertise. Its main competitors are Henkel and HB Fuller;
- industry: thanks in particular to its three main high-growth technology platforms, Bostik is estimated to rank among the world's top four in this more regional market. Its main competitors are Henkel and HB Fuller but it also has a number of local competitors, particularly in emerging economies; and
- construction and consumer goods: in these local markets, Bostik ranks among the top three players in the main countries in which it operates. Bostik can leverage its brand portfolio and strong positioning in growth regions such as South-East Asia and China to expand its business in these still fragmented markets. Its main competitors are Henkel, Sika and Mapei.

Strategy

In the medium term, the Group is targeting in adhesives EBITDA of around €300 million in 2020 (versus €158 million at the time of the acquisition) and an EBITDA margin of 15%, with capital expenditure of between 2.5% and 3% of sales.

In the longer term, Arkema intends to further accelerate its development in adhesives, with the aim of more than doubling the sales generated by this Business Line (from a 2016 baseline of €1.6 billion) by 2023, when it is expected to account for more than one third of Arkema's total sales. Arkema also plans to continue to improve the Business Line's profitability, with the aim of achieving a REBIT margin of between 12.5% and 13% in 2023.

This ambition will notably be achieved by stepping up implementation of Bostik's development strategy, which includes:

- the adoption of a specific strategy for each type of segment:
  - hygiene: maintain technological leadership and pursue globalization,
  - industry: build global leadership positions in core segments, notably in structural adhesives with the recent acquisition of Afinitica, and step up development in high value-added niche markets,
  - construction: develop leadership positions in floor adhesives and sealants and take advantage of the leverage created by recent and upcoming acquisitions, and
  - consumer goods: strengthen the Bostik® brand worldwide and be recognized as the preferred innovative player, and boost marketing initiatives through digital technology;
- ongoing development in fast-growing regions, in line with Bostik's 2023 target of doubling sales in emerging economies (China, India, South-East Asia, Latin America, Eastern Europe and the Middle East) versus the 2016 baseline and generating 30% of its total sales in these geographies;
- bolt-on acquisitions offering significant synergies; and
- ongoing day-to-day efforts to improve operational excellence, which are expected to drive annual gains of around €10 million.

(1) Source: Arkema internal estimates and IHS Specialty Chemicals Update Program – Adhesives and Sealants, July 2016.

Highlights

As part of its bolt-on acquisition strategy, Bostik announced:

- the acquisition, completed on 1 December 2016, of Den Braven, a European leader in sealants for construction and insulation applications which achieved in 2016 around €345 million in sales. The transaction strengthens Bostik's insulation and construction offering and will speed up its growth thanks to the excellent entry point which these product ranges represent when entering emerging markets, particularly in Asia. Den Braven employs some 1,000 people and boasts world-class industrial facilities, with eight production sites around the world. This high-value-creating acquisition was made on the basis of an enterprise value of €485 million, or 11 times 2016 EBITDA. It offers significant synergies estimated at €30 million at least, to be fully achieved within five years, reducing the multiple to around 6.5 times EBITDA. The generation of these synergies is progressing in line with the schedule drawn up at the time of the acquisition;
- the acquisition in May 2017 of CMP Specialty Products, a floor preparation products business based in the United States. This business, which generated US$15 million in sales in 2016, offers significant synergies with Bostik. The acquisition fits perfectly with Bostik's strategy to expand in the growing US construction market and to offer its customers a complete range of innovative solutions for the flooring market;
- the acquisition, completed in January 2018, of XL Brands, a leader in floor covering adhesives in the United States. This operation was based on an enterprise value of US$205 million or 11 times EBITDA on the acquisition date (seven times within four to five years and including synergies). This bolt-on acquisition, which complements the acquisition of CMP, allows Bostik to become one of the leaders in floor covering adhesives in the United States and offer comprehensive solutions in this growing high value-added market;
- the acquisition, completed in August 2018, of Nitta Gelatin Inc.'s industrial adhesives business in Japan, by the Bostik-Nitta joint venture. Together with the construction of a new adhesives plant in Japan, which should come on stream in 2020, this acquisition will enable Bostik to speed up its expansion, particularly in the buoyant nonwoven markets for hygiene applications and in the packaging, labeling, transportation and electronics industrial markets; and
- in October 2018, the strengthening of the Group's position in high performance adhesives with the acquisition of Afinitica, a company that specializes in instant adhesives, also known as cyanoacrylates. This small bolt-on acquisition will enable Bostik to develop a solid position in the adhesives used in markets with strong growth potential, including electronics and medical equipment, and in other durable goods manufacturing applications.

Since 2016, Bostik has also started up several new production units. In 2017, Bostik announced the opening of a new hot melt pressure sensitive adhesives (HMPSA) unit in Gujarat, India, which enables it to meet growing demand for adhesives from various industrial sectors in India, such as flexible packaging, transportation and footwear production. In 2016, Bostik started up new production units for the construction markets in Malaysia, the Philippines and Sweden.

Advanced materials: Technical Polymers and Performance Additives

The Group's activities in the area of advanced materials bring together businesses that combine differentiation and innovation with specialty activities. They lie at the crossroads of numerous growth opportunities, such as lightweight materials, water sanitation, various forms of new energies and 3D printing, and are supported by leading technological, industrial and commercial positions in diverse geographies worldwide. They are also supported by long-term partnerships with major industrial players that are leaders in their areas of expertise. Lastly, the Group's advanced materials activities are served by a unique portfolio of high-performance bio-based solutions marketed under strong brands, such as Kynar®, Pebax® and Rilsan®.

In the coming years, Arkema plans to maintain a strong innovation dynamic in advanced materials, which bring together the Technical Polymers and Performance Additives Business Lines and represent a major driver of Arkema's future growth.

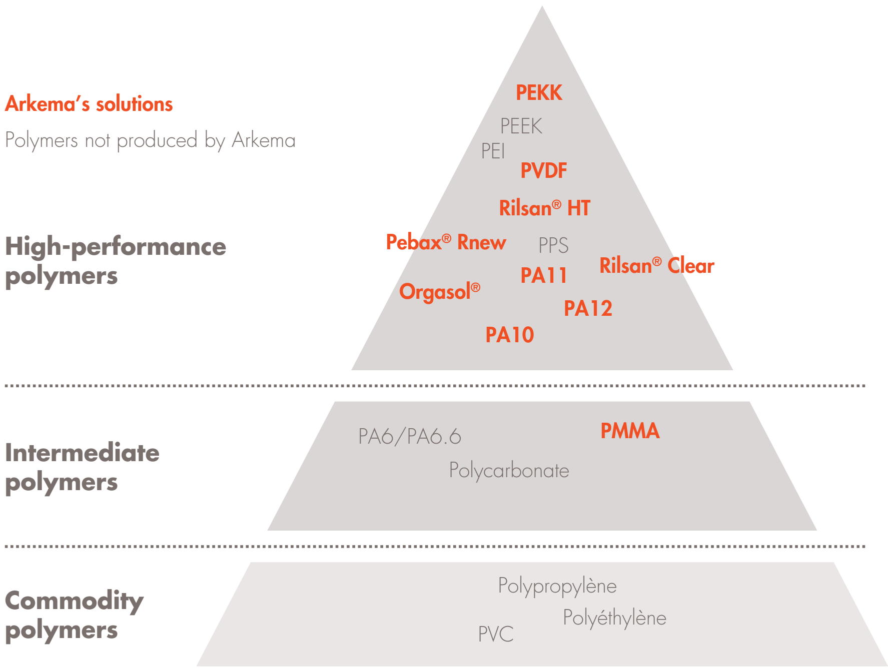
Products and markets

Technical Polymers (10% of Arkema sales in 2018)

Technical Polymers comprises two product lines: specialty polyamides and polyvinylidene fluoride (PVDF). These high-performance polymers are sold under well-known brand names such as Rilsan®, Rilsamid®, Orgasol® and Pebax® for specialty polyamides and Kynar® for PVDF.

Since 2019, this Business Line also encompasses the marketing of PEKK, an extremely high-performance polymer with properties similar to metal, which was developed by the corporate research incubator.

RANKING OF POLYMERS BY PERFORMANCE



- **Specialty polyamides**

Specialty polyamides encompass long-chain polyamides 10, 11 and 12. Arkema is a leading manufacturer and marketer of these products and the only manufacturer of bio-based polyamide 11, made from castor oil. Its main competitors are Evonik and EMS for polyamide 10, which is also bio-based, and Evonik, EMS and Ube for polyamide 12.

Specialty polyamides are primarily used in the transportation, oil and gas (deep offshore extraction), sport, new energies, electronics and 3D printing industries.

In the coming years, global growth of specialty polyamides end markets could reach an average of 5% per year, of which 7% in Asia [(1)], driven by growing demand for (i) lighter materials, particularly in the automotive (as a replacement for metal to reduce vehicle weight) and consumer goods markets (sports equipment and electronics) and (ii) bio-based polymers such as polyamide 10 and 11.

- **Polyvinylidene fluoride (PVDF)**

PVDF is widely used in architectural and anticorrosion coatings, the chemical and oil and gas industries (deep offshore extraction), electric cables, photovoltaic panels, lithium-ion batteries and water treatment membranes.

Demand is primarily being driven by growth in Asia, the rapid development of new energies and the rising need for drinking water.

Arkema is the world leader in the PVDF polymer range [(2)], with Solvay and Kureha as its main competitors. In the coming years, end markets could grow by an average annual rate of 7% [(1)].

Performance Additives (12% of Arkema sales in 2018)

Performance Additives comprises Sartomer's photocure resins and the organic peroxides and adsorption businesses.

- **Sartomer's photocure resins**

Thanks to unique technologies, Sartomer's photocure resins provide customers with high-tech, high value-added products and applications. Its photocure resins deliver excellent technical performance properties, particularly in terms of stain, impact and scratch resistance, and offer almost instant curing. With 100% dry-content, these innovative resins are environmentally friendly and comply with European volatile organic compound (VOC) standards. As such, they play a key part in Arkema's sustainable new materials strategy.

The photocure resins business operates globally, with two sites in the United States, one in Europe and another in Asia.

Photocure resins are used in a wide range of markets, including graphic art (inks and varnishes), industrial coatings, optics (fiber, DVD and Blu-Ray technologies), electronics (printed circuits), wood coatings, 3D printing and inkjet printing.

(1) Source: Arkema internal estimates.

(2) Source: IHS Chemical Economics Handbook – Fluoropolymers, April 2016.

Global growth in photocure resin end markets over the coming years could be as high as 5% a year [1]. The Group's main competitors are Allnex, Eternal and Miwon.

Sartomer is also a pioneer in the design of 3D printing systems using UV curable layers. Its specialized offering for UV curable 3D printing, marketed under the new N3xtDimension® brand, is aimed at the booming global 3D printing market, which is expected to grow by nearly 20% per year until 2020 [1].

- **Organic peroxides**

Organic peroxides are initiators used in a variety of fields including commodity polymers (reaction initiators for low-density polyethylene, PVC and polystyrene), acrylic polymers, unsaturated polyesters and rubber cross-linking. Arkema estimates that it ranks number two worldwide in this sector. Its main competitors are Nouryon and United Initiators.

This business also includes glass coating additives (primarily used in glass bottles), for which Arkema ranks among the leading companies worldwide.

- **Adsorption**

The adsorption business is organized around two activities: molecular sieves, and specialty surfactants and interface agents.

Arkema is the world number two in molecular sieves [1]. Featuring excellent adsorption and dehydration properties, these products are mainly used for industrial gas separation in certain petrochemical units and for medical oxygen in healthcare as well as in the construction and pharmaceutical packaging industries.

The specialty surfactants and interface agents activity mainly includes specialty chemicals produced downstream from fatty acids. The many products derived are used as additives in such highly diverse areas as oil and gas production, bitumen, fertilizers, corrosion inhibitors, antistatics and emulsifiers.

Strategy

On the back of its portfolio of innovative products with properties that are highly sought after, particularly in the areas of lightweight materials, water treatment, new energies and 3D printing, Arkema will continue to invest significantly in coming years in advanced materials, which offer significant opportunities for innovation and geographic expansion. Advanced materials are expected to account for more than 25% of Arkema's total sales in 2023, with a REBIT margin of 14% to 15%.

In particular, Arkema aims to:

- strengthen its positions in certain fast-growing, high value-added markets such as the aerospace, automotive, 3D printing, water treatment, consumer electronics and sports markets, through new developments from its innovation efforts;
- step up its growth in Asia in order to support the very strong growth of its global and local customers in this region;
- develop partnerships with world renowned players in their areas of expertise; and
- strengthen its portfolio of solutions with breakthrough innovations like Kepstan® PEKK for aerospace and 3D printing applications, and thermoplastic composites, some of which can be recycled.

To implement this strategy successfully, Arkema will dedicate around 4% of the sales generated by these activities to research and development and up to 8% of sales for certain very-high-potential applications.

Arkema is also undertaking several significant capital expenditure projects, in Asia for the bio-based polyamide 11 chain and for Sartomer's photocure resins, and in the United States, where the Group recently started up new units for the production of Kynar® PVDF and Kepstan® PEKK. Following these various investments, advanced materials should achieve around 5% per year organic growth from 2023 onwards.

Highlights

To support its customers' growth, Arkema started:

- in January 2016, a new **organic peroxide** production line in Changshu, China that doubles the site's production capacity;
- in September 2016, an increase in **specialty polyamide** production capacity in China and the United States;
- early 2017, the doubling of its **specialty molecular sieve** capacity to meet the market's average annual growth rate of 4% to 5% [1] in particular in Asia and the Middle East, driven mainly by the development of the synthetic textile and PET bottle end markets. This capacity extension at the Honfleur site in France now operates at full capacity. It produces adsorbents for use in the petrochemicals industry when separating aromatics;
- in April 2017, a 25% increase in **Kynar® PVDF** production capacities at the Changshu complex in China to meet strong demand for new energies and water treatment applications;
- in April 2018, an increase in **Kynar® PVDF** production capacity of around 20% at the Calvert City plant in the United States, to enable the Group to support its customers in the water management, chemical engineering and high performance cables markets; and
- early 2019, a world-scale **Kepstan® PEKK** production unit at its Mobile, Alabama site in the United States. The unit will help to meet growing demand in the carbon fiber reinforced composites and additive manufacturing (3D printing) markets. The Group had already doubled its PEKK production capacity in France, as of February 2017.

In addition, Arkema has announced various industrial projects, including:

- in July 2017, a major investment plan representing around €300 million for the bio-based **polyamide 11** chain in Asia to enable the Group to support its customers' very strong growth, especially in the automotive and 3D printing markets as well as in consumer goods such as sports and electronics. This new plant, which will produce both amino 11 monomer

(1) Source: Arkema internal estimates.

and its polymer, Rilsan® PA11, is expected to come on stream in late 2021. It will enable the Group to increase its global polyamide 11 production capacity by 50%. As part of its specialty polyamides investment plan, the Group will also increase its global production capacity for Pebax® by 50%;

- in July 2017, a project to increase **Sartomer's** production capacity by over 30% in China (Nansha). The new line will produce high-performance photocure resins designed for the cutting-edge electronics market, where they are used for the design and manufacture of printed circuits and screens for smartphones, tablets and television sets, and for the 3D printing market for which Sartomer recently launched its new generation of solutions under the N3xtDimension® range. The new line is scheduled to start operating in the first half of 2019;
- in February 2018, a 25% increase in the global **polyamide 12** capacity, which is marketed under the Rilsamid® brand. The new capacity will be added on the Changshu platform in China, with start-up scheduled for mid-2020. This investment of a few tens of millions of euros will enable the Group to meet strong demand for growing applications such as cable protection, lighter materials in the automotive market, technical sports shoes and consumer electronics;
- in March 2018, the signing of a strategic alliance to develop thermoplastic composites for the aerospace industry combining the expertise of Hexcel in carbon fiber and that of Arkema in **PEKK**. In March 2019, Arkema and Hexcel announced the opening of a joint R&D laboratory in France;
- in June 2018, an increase of more than 50% in the Group's global production capacity of **Orgasol® specialty polyamide** powders at the Mont facility in France, for an investment of around €20 million. The capacity increase is intended to help meet strong demand for industrial applications, in particular in the coatings, composite and 3D printing markets. It is scheduled to come on stream in the second half of 2019; and
- in September 2018, the creation of a joint venture, known as Barrflex® TU, with Barrday Inc., a major player in the composites market, to manufacture and market carbon fiber and specialty polymer tapes for the oil and gas market.

In addition, Arkema actively pursued its research and innovation efforts in order to continue to offer innovative solutions for high-growth applications such as electronics, which notably resulted in a new product offering in specialty polyamides. It has also stepped up development in the battery market through the increased use of its PVDF in electric vehicles and lithium-ion batteries for electronic devices like tablets and smartphones. Arkema is reinforcing its presence in the aerospace market with the Kynar® foam range, which can be used to replace certain metal aircraft parts, such as window frames and air-conditioning conducts, thereby meeting the growing demand for lighter materials.

Lastly, as part of the strategy to refocus its portfolio on its core businesses, in November 2016 Arkema finalized the sale of its activated carbon and filter aid business, which was part of the adsorption business, for an enterprise value of €145 million, or 9.5 times 2015 EBITDA. The business represented sales of around €93 million.

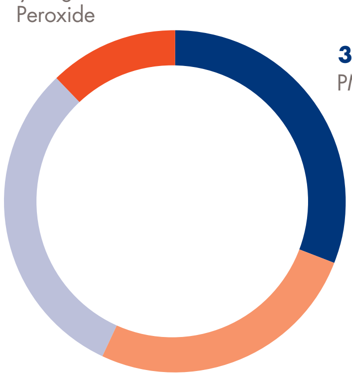
1.2.2 Industrial Specialties

1.2.2.1 KEY FIGURES

(In millions of euros)	2018	2017	2016
Sales	2,699	2,545	2,316
EBITDA	675	585	473
Recurring operating income	497	411	300
Recurring capital expenditure	178	144*	155

* *For further details, please refer to the notes to the consolidated financial statements in section 5.3.3 of this document.*

1.2.2.2 BREAKDOWN OF DIVISION SALES BY BUSINESS LINE (2018) (1)



1.2.2.3 OVERVIEW OF THE DIVISION'S BUSINESS

The Industrial Specialties division comprises four Business Lines: PMMA, Thiochemicals, Fluorogases and Hydrogen Peroxide.

The Business Lines in this division share various characteristics, including the use of complex manufacturing processes and the existence of global markets with strong growth prospects, particularly in Asia.

Arkema is a leading player worldwide in its four main product lines and has production units in Europe, North America and Asia.

The Industrial Specialties division continues to selectively pursue the development of its activities, strengthen its positions worldwide and implement cooperation projects with its main partners. Arkema also intends to increase the share of specialty products in its portfolio in order to take advantage of the higher growth rates in these higher value-added niche markets. The Industrial Specialties division is actively pursuing its operational excellence actions to maintain competitiveness and technological leadership in its markets. Lastly, it is also pursuing its objective of securing a competitive, long-term supply of strategic raw materials.

PMMA (10% of Arkema sales in 2018)

Products and markets

The PMMA Business Line is organized into two areas.

The first is an integrated production chain from methyl methacrylate (MMA) to polymethyl methacrylate (PMMA). Operating on three continents, this global activity has facilities in the United States, Mexico, Europe and South Korea. Its main brands – Plexiglas® on the American continent and Altuglas® elsewhere – enjoy high customer awareness. Its main products include granules for molding, and cast and extruded sheets for forming. In the United States, Arkema signed methyl methacrylate (MMA) capacity reservation agreements with The Dow Chemical Company in October 2000. These agreements represent Arkema's only source of MMA supply in the United States.

The overall size of the PMMA market is estimated at 2 million tonnes (2) and primarily serves the construction, automotive, sanitaryware, commercial display, electronics and household goods markets. In PMMA end markets as a whole, annual global growth over the coming years could be close to 2.5% (2). Arkema is one of the leading producers of PMMA in the world (3). Its main competitors are Mitsubishi Chemical, Evonik and Sumitomo Chemical.

(1) *In 2017, division sales by Business Line broke down as follows: 33% PMMA, 27% Thiochemicals, 28% Fluorogases and 12% Hydrogen Peroxide.*

(2) *Source: Arkema internal estimates.*

(3) *Source: IHS Chemical Economics Handbook – Acrylic Resins and Plastics, May 2016.*

After very tight market conditions in the MMA/PMMA chain in 2017 and first-semester 2018, two new production units were brought on stream by competitors in Saudi Arabia in first-half 2018. As a result, market conditions started to normalize at the end of the third quarter 2018. This gradual normalization process is expected to continue in 2019.

The second area is functional polyolefins, which are used primarily in packaging, photovoltaics, and the electrical, electronics and automotive industries.

Thiochemicals (8% of Arkema sales in 2018)

Products and markets

The Thiochemicals Business Line mainly focuses on sulfur derivatives. It is one of Arkema's three growth drivers for the coming years.

The main markets for Thiochemicals are animal feed, refining and petrochemicals, natural gas odorization, solvents, pharmaceuticals and cosmetics. In the animal feed market, Arkema produces a sulfur-based intermediate used in the synthesis of methionine, an amino acid used as a nutritional supplement notably in poultry feed. Demand in this sector is being supported by increasing poultry consumption, particularly in emerging economies. In the oil and gas industry, demand is driven by the growing use of natural gas and by stricter sulfur content standards for automotive fuel (petrol and diesel). New applications have also been developed, for example in soil fumigation.

The size of the global thiochemical market is estimated at 0.84 million tonnes [(1)]. Global thiochemical end markets are expected to grow by around 5% a year on average in the coming years.

Arkema is currently the world number one in this sector [(1)]. Its main competitor is Chevron Phillips Chemical, with additional competition from local players for some products.

The Thiochemicals Business Line operates worldwide. It has production sites in the United States, Europe and, more recently, Asia thanks to the start-up in early 2015 of a new complex in Kerteh, Malaysia, where Arkema has signed joint venture agreements with South Korean group CJ CheilJedang (CJ). Under the terms of the arrangement, Arkema Thiochemicals Sdn. Bhd. (86%-owned by Arkema and 14%-owned by CJ) supplies methyl mercaptan (MeSH) from its Kerteh complex to CJ Bio Malaysia Sdn. Bhd. (86%-owned by CJ and 14%-owned by Arkema) in volumes sufficient to cover all of the needs of CJ Bio Malaysia Sdn. Bhd with respect to the manufacture of methionine at its production unit on the same industrial site.

In the United States, Arkema Inc. signed a long-term contract with Novus International, Inc. on 1 January 2002 for the production of 3 methylthiopropionaldehyde (MMP), an intermediate in the manufacture of methionine, at its site in Beaumont. Under the terms of this contract, Arkema Inc. has built an MMP production unit on behalf of Novus International, Inc., which is operated by and receives its raw materials from Arkema Inc. This contract represents material sales for Arkema.

Highlights

To support the strong growth of the animal feed market and thereby strengthen its world-leading position in high value-added sulfur derivatives, Arkema announced, in July 2017, a project to double methyl mercaptan production capacity at its Kerteh site in Malaysia. This additional capacity is expected to start production in 2020. Furthermore, the review carried out by the Group and its partner Novus with a view to doubling the production capacity at the Beaumont site in the United States have not been conclusive at this stage.

Finally, in September 2018, Arkema announced an incremental investment to increase linear mercaptan production capacity at its Houston plant in the United States by up to 30%, in response to growing demand for polymers from the transportation and electronics markets.

Fluorogases (9% of Arkema sales in 2018)

Products and markets

The Fluorogases Business Line manufactures and markets a range of HCFC and HFC products under the Forane® brand. This is a worldwide business for the Group, with production sites in France, the United States and China. The Business Line also develops fourth-generation HFO blowing agents with zero ozone depletion potential (ODP) and low global warming potential (GWP).

These products are primarily used in two sectors:

- refrigeration, air-conditioning and foams. These emissive applications are subject to regulatory changes and are expected to grow by an annual average of 1% to 2% over the coming years [(1)]; and
- fluoropolymers such as polyvinylidene fluoride (PVDF), which is produced by Arkema. Going forward, average annual growth in these markets is expected to reach between 4% and 5% [(2)], and may reach even higher rates for some fluoropolymers like PVDF.

Arkema is the world number three in Fluorogases [(2)], with its main competitors being Chemours, Mexichem, Honeywell, and several Chinese players.

With regard to emissive applications, the implementation of the Montreal and Kyoto Protocols has led to a change in fluorogas regulations in a certain number of countries. For this reason, the transition from old generations (HCFC) to existing generations (HFC) then new generations (HFO) of products is taking place progressively at a different pace depending on the region, application and product.

(1) Source: Arkema internal estimates.

(2) Source: IHS Chemical Economics Handbook – Fluoropolymers, April 2016.

For HCFCs, regulatory changes in developed countries have led to their use being phased down in emissive applications, with regulations varying from region to region. In particular, considering that allowance quotas were revised downward for the 2015-2019 period in the United States, the Fluorogases Business Line generated a significant share of its results in this region from the sale of HCFC-22. From 2020, the production and import of HCFC-22 will no longer be allowed in the United States. Only sales of existing stockpiles and recycled products will be authorized. For new equipment and foam expansion in Europe and North America, HCFCs are being replaced by HFCs. However, as per Article 5 of the Montreal Protocol, developing countries are still authorized to use HCFCs, albeit with quotas in some cases.

HFCs have also been the object of recent regulatory changes such as the European F-Gas regulation, applicable since 1 January 2015, which introduces a quota system that gradually phases down, or bans in a few cases, the use of these fluorogases in certain applications, and the European directive on mobile air-conditioning systems (MAC), which bans the use of refrigerant gases with a global warming potential higher than 150 in all new vehicles sold in Europe since 1 January 2017. The implementation of the F-Gas regulation has significantly tightened the balance between supply and demand in Europe. More generally, the October 2016 Kigali Amendment to the Montreal Protocol aims to gradually phase down the use of HFC fluorogases.

To comply with the various regulations, the Fluorogases Business Line has developed HFC blends (32, 125, 134a, 143a, etc.) and new substitutes for foams.

Highlights

The Business Line's historical levels of strong profitability have been restored since 2017, thanks both to internal measures to optimize fixed and variable costs and to significantly improved market conditions in the Group's three key regions, driven by (i) the introduction of the F-Gas regulation in Europe, (ii) the quota system for HCFC-22 and the application of antidumping duties on certain products in the United States, and (iii) a better balance between supply and demand in Asia. In 2018, this business's results exceeded the 2017 high reference.

Arkema aims to participate in the development of HFOs, the low-GWP next generation of Fluorogases. Arkema has thus developed its own technology for producing 1234yf, which is the standard developed for replacing 134a in car air-conditioning. However, the right to sell this fluorogas in this market is currently patent-protected by US-based company Honeywell. Arkema considers that these patents are based on weak claims and that Honeywell's practices hinder fair competition. For this reason, Arkema has launched legal actions against Honeywell, on the one hand, to have the patents declared null and void and with the European Commission, on the other hand, to obtain a fair, reasonable and non-discriminatory (FRAND) license to market the product. In 2017, a new complaint was filed with the European Commission against Honeywell for abuse of dominant position. Arkema believes that this new complaint represents the most appropriate course of action to enable the Group to contribute to a competitive market by obtaining a FRAND license to Honeywell patents. Consistent with the filing of the new complaint, Arkema has withdrawn its previous complaint. Arkema now awaits the European Commission's thorough and timely investigation. Arkema's announced 2020 targets do not include any contribution from 1234yf. Arkema has, however, built a production unit at its Changshu site in China to ensure it can supply its customers once it is in a position to do so.

Arkema has expanded its range of new-generation fluorogases. It now offers its customers in Europe and other parts of the world the new non-flammable, low-GWP blowing agent, Forane® 1233zd, which is used in polyurethane foams for insulation purposes.

Hydrogen Peroxide (4% of Arkema sales in 2018)

Products and markets

The Hydrogen Peroxide Business Line includes hydrogen peroxide, sodium chlorate and sodium perchlorate.

Hydrogen peroxide is a global business for Arkema, with production units in Europe (France and Germany), North America (Canada and the United States), and Asia (China). Sodium chlorate, which is mostly used in the paper pulp market, is produced only at the Jarrie site in France. Arkema is a regional player for this product.

Hydrogen peroxide is primarily used in paper pulp, chemical products (including organic peroxides in the case of Arkema), water treatment, disinfection of food packaging, cleaning of electronic components, and textiles. Its intrinsic properties, particularly its neutral impact on the environment, offer good prospects, with estimated global long-term growth of 2% to 3% annually [(1)]. Energy is a major component of the business's production costs.

Arkema is ranked third worldwide in terms of hydrogen peroxide production [(2)]. Its main competitors are Solvay, Evonik and EKA (Nouryon). The size of the global market is estimated at 5.5 million tonnes [(2)].

Highlights

In September 2016, Arkema and PROMES, a laboratory run by French national research agency CNRS, inaugurated the "MicroSol-R" micro solar power plant in the French Pyrenees. The plant operates using Jarysol heat-transfer fluid (a chlorine-based product) specially developed by Arkema at the Jarrie site.

(1) Source: Arkema internal estimates.

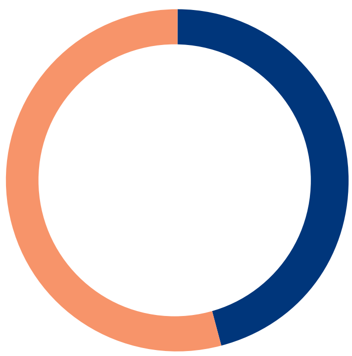
(2) Source: IHS Chemical Economics Handbook, Hydrogen Peroxide, October 2018 and Arkema internal estimates.

1.2.3 Coating Solutions

1.2.3.1 KEY FIGURES

(In millions of euros)	2018	2017	2016
Sales	2,120	1,924	1,771
EBITDA	243	244	208
Recurring operating income	140	135	83
Recurring capital expenditure	117	88	82

1.2.3.2 BREAKDOWN OF DIVISION SALES BY BUSINESS LINE (2018) (1)



1.2.3.3 OVERVIEW OF THE DIVISION'S BUSINESS

The Coating Solutions division comprises the Acrylics and Coating Resins and Additives Business Lines.

Since its stock market listing, Arkema has strengthened its Acrylics activities by securing competitive upstream acrylic monomers in Europe, North America and Asia, by developing downstream integration of its acrylic monomers and by building an integrated production chain in the coatings sector. This strategy has been supported by various acquisitions. In 2007, Arkema acquired rheology additives specialist Coatex. In 2010, it purchased certain acrylics assets from The Dow Chemical Company in North America, including its Clear Lake, United States monomers site and downstream emulsions activities. In July 2011, it bought the coating and photocure resins business from Total. In 2014, it acquired a stake in an acrylic monomer production unit in China.

The Coating Solutions division is built around a coherent set of activities, with a downstream segment focused on the coatings market (decorative paints and industrial coatings), and a competitive upstream segment in acrylic monomers supplying the coatings market and higher-growth markets like superabsorbents and water treatment. Building on an industrial footprint in three continents and the market's most comprehensive product range, the Coating Solutions division is implementing a strategy based on:

- pursuing the downstream integration of acrylic monomer activities, with the mid/long-term target of achieving around 45% integration including long-term partnerships, compared with around 35% in 2018. This rate will decrease following the increase of Arkema's interests in Taixing Sunke Chemicals. Downstream acrylics will be strengthened in the coming years through long-term partnerships with industry leaders, geographic expansion into higher growth regions, innovation focused on the development of more environmentally friendly solutions and bolt-on acquisitions; and
- strengthening the competitiveness of the upstream by maintaining technological leadership and enhancing operational efficiency.

The main purpose of this strategy is to enhance the division's performance and reduce its cyclicality.

Acrylics (11% of Arkema sales in 2018)

Products and markets

The main products of the Acrylics Business Line are acrylic acid and derivatives (esters).

The primary raw material used by the Acrylics Business Line is propylene, making supply security a critical factor for Arkema. In France, the Group's main supplier is Total Petrochemicals France (TPF). Following the shutdown of TPF's steam cracker in Carling in 2015, a new propylene supply contract was signed on 3 September 2015 covering the period to 30 April 2021. Under the terms of the new agreement, TPF has agreed to sell and deliver propylene to Arkema France, for use at its Carling site (for further details, see section 2.1.3 of this document). In the United States, Arkema notably has a long-term contract with Enterprise Products Partners L.P., for the supply of propylene produced by propane dehydrogenation (PDH).

The Acrylics production sites are located in Carling, France, Clear Lake and Bayport, United States and Taixing, China.

(1) In 2017, division sales by Business Line broke down as follows: 42% Acrylics and 58% Coating Resins and Additives.

The size of the global acrylic acid market was estimated at 6.1 million tonnes in 2018 [(1)].

The main markets for acrylics are coatings (such as decorative paints, industrial coatings and photocure resins), superabsorbents, adhesives, water treatment as well as the energy industry and, more particularly, enhanced oil and gas recovery. Over the next few years, acrylics end markets may grow by an average of 4% annually [(1)]. Growth should average an annual 5% in Asia and around 3% in the Americas (North, Central and South) and in Europe [(2)].

Including the acquisition announced in November 2018 of Jurong Chemical's interest in the Taixing Sunke Chemicals production joint venture located in China, Arkema is the second largest acrylics producer worldwide [(1)]. Its main competitors are BASF, Dow and Nippon Shokubai, as well as several other Asian players.

Market conditions continued to improve in 2018. The Group estimates that they are close to the middle of the cycle in Europe and the United States but still between low and mid-cycle in China.

Highlights

To keep pace with growth in its end markets and reinforce its geographic presence in Acrylics, Arkema announced:

- in January 2017, a project to replace two end-of-life acrylic-acid reactors with annual capacities of 45,000 tonnes each at its Clear Lake site in the United States with a single new reactor with an annual capacity of 90,000 tonnes. The US$90 million investment will make Clear Lake one of the most competitive acrylics sites in North America while supporting growing demand in the region. The project is expected to start up in mid-2019; and
- on 6 November 2018, an agreement with Jurong Chemical to acquire its interest in Taixing Sunke Chemicals, their joint venture that produces acrylic monomers in China. The Group would thus become the sole shareholder of the company for a limited impact on its net debt estimated at around €70 million. The acquisition, subject to clearance from the relevant Chinese authorities, could be completed in the second quarter of 2019. If finalized, the acquisition would enable Arkema to double its available production capacities in China to 480,000 tonnes of acrylic acid.

In addition, in March 2017, Arkema completed the sale to INEOS of its 50% interest in Oxochimie, their oxo alcohol production joint venture, along with the associated business assets. Annual third-party sales of these products on the merchant market represented some €40 million for Arkema. INEOS continues to supply Arkema's acrylic ester units.

Coating Resins and Additives (13% of Arkema sales in 2018)

The Coating Resins and Additives Business Line comprises two businesses: coating resins and rheology additives (Coatex). These activities are conducted downstream of the Acrylics and PMMA Business Lines.

Products and markets

- **Coating resins**

Arkema is one of the major suppliers of resins to the paint and coating industry, with a comprehensive offering in terms of technologies and geographical coverage. Arkema's wide-ranging innovative product range comprises the following:

- liquid resins: these include emulsions and alkyd, acrylic and polyester resins and serve the decorative paint and industrial coating markets, as well as the adhesive and sealant, ink and road paint markets;
- powder resins for the metal coatings market: by eliminating the need for solvents, these 100% dry content solutions comply with European requirements for the production of low-VOC coatings; and
- PVC additives, which are acrylic-acid derivatives that include impact modifiers and processing aids.

The coating resins business operates worldwide, with sites in the United States, Europe, Asia and South America and R&D centers in Europe and the United States, enabling Arkema to support its global customers in their search for innovative and environmentally friendly formulations.

Growth in the business's end markets could average up to 4% annually over the coming years [(1)].

Arkema ranks among the world's leading companies in the coating materials market. Its main competitors are BASF, DowDupont, Allnex, Synthomer and DSM.

- **Rheology additives (Coatex)**

The rheology additives business manufactures primarily acrylic-based polymers that are used as dispersants and thickeners. The main applications for these high-growth specialty chemical activities are in the paper, paint, water treatment, cosmetics, textile and concrete industries. Coatex has industrial sites and storage facilities in Europe, the United States, Asia and Latin America.

Highlights

Arkema has taken the following steps to support the development of Coating Resins and Additives:

- in early 2019, the Group announced the start up of its new polyester powder resin production unit at its resin manufacturing plant in Navi Mumbai, Maharashtra, India. Representing an investment of some US$15 million, the project comprises a new production unit and a new laboratory dedicated to application development and technical assistance. The new facilities will enable the Group to serve customers more effectively in the fast-growing powder coating market; and
- the Group has also continued to innovate with the development of several innovative solutions, including Celocor®, an additive that potentially reduces the cost of paint by partially replacing titanium dioxide.

In addition, in 2017, Coatex renewed its long-term contract for the supply of dispersants to the Omya group.

(1) Source: Arkema internal estimates.

(2) Source: IHS Chemical Economics Handbook – Acrylic Acid and Esters, September 2017 and Arkema internal estimates.

1.3 CORPORATE DEPARTMENTS

The corporate departments provide continuous support to Arkema's divisions, mainly in the areas of industry, accounting, taxation, legal affairs, IT, human resources and communication.

Under the authority of the Executive Committee and in particular the corporate Executive Vice-Presidents (see section 3.2.2.2 of this document), the corporate departments are responsible for ensuring the overall coherence and control of Arkema. More specifically, they coordinate procurement and logistics and maintain expertise in such key areas as safety, environment, R&D and process engineering. Some of the corporate departments work for Arkema as a whole. This is notably the case for Internal Audit and Internal Control, External Communication, Investor Relations, Accounting and Controlling, and Legal Affairs.

As an exception to the general organizational principles governing the corporate departments, the Raw Materials and Energy Procurement department reports directly to one of the three operational Executive Vice-Presidents.

In addition, the R&D department and the Digital Transformation department created on 1 March 2018 report directly to the Chairman and Chief Executive Officer, reflecting the importance of R&D and digital transformation in the Group's strategy.

The table below shows Arkema's corporate departments at 31 December 2018.

Corporate department	Units within the corporate department	Main responsibilities
Human Resources & Communication	• HR Development and Internal Communication	• Ensure that the Group has the people and skills it needs to carry out its strategy.
	• Labor Relations and Remuneration Systems	• Implement lasting solutions to facilitate social dialogue within the Group.
	• Institutional Relations	• Establish and maintain constant dialogue between the Group and its various stakeholders.
	• External Communication	• Communicate and share the Group's strategy and ambitions with external stakeholders (customers, journalists, civil society representatives and the general public).
Industry	• Safety and Environment	• Manage personal and environmental risks by implementing a management system that meets the highest international standards and by instilling a culture of excellence in health, safety and the environment (HSE) across the Group.
	• Sustainable Development	• Roll-out the sustainable development strategy validated by the Executive Committee and coordinate initiatives relating to corporate social responsibility (CSR), product stewardship and regulatory compliance.
	• Technical/Construction	• Oversee the design and construction of new industrial facilities, leverage technical expertise and organize technical support for the Group's operational units.
	• Supply Chain	• Optimize customers' supply chain by meeting their quality of service expectations, while also optimizing Arkema's working capital and transportation costs both safely and responsibly.
	• Operational Excellence	• Develop a culture of operational efficiency to ensure the competitiveness of our industrial sites.
	• Goods and Services Procurement	• Develop and deploy a goods and services procurement strategy that optimizes the operating costs and investments of Group entities over the long term.
	• Processes	• Coordinate the development of process optimization and technological innovation policies in the various Business Lines.

Corporate department	Units within the corporate department	Main responsibilities
Finance	• Accounting/Controlling	• Prepare the Group's parent company and consolidated financial statements, as well as the corresponding performance analyses. Organize the budget process, financial forecasts and the follow-up of financial objectives.
	• Financing/Treasury	• Set up financing and cash management arrangements, manage banking relationships and anticipate the Group's strategic developments.
	• Taxation	• Ensure compliance with tax laws and regulations, documentation of intra-group transactions and follow-up of tax audits.
	• Information Systems	• Define the Group's information systems strategy, organize its networks, infrastructure and applications and ensure their secure and optimized management, supervise the implementation of IT projects, and support users in their application of IT solutions and their adoption of new practices.
	• Investor Relations	• Manage investor relations, organize the annual general meeting and contribute to communicating the Group's strategy.
Strategy	• Acquisitions/Divestitures	• Manage acquisitions and divestitures, as well as joint venture projects.
	• Legal Affairs	• Ensure that operations are conducted in compliance with the applicable laws and regulations, as well as Group procedures, and participate in defending Arkema's interests.
	• Planning/Economic Studies	• Undertake the studies and analyses necessary to guide the Group's strategic decisions.
	• Internal Audit/Internal Control	• Define internal control guidelines and ensure their application within the Group's various entities.
	• Insurance	• Set up and manage all forms of insurance coverage (property damage, civil liability, etc.).
	• Business development	• Help identify new business development opportunities for the Group.
R&D	• Research Program	• Drive commercial development of products and solutions with the aim of continually improving Group's performance and enhance operational excellence by providing production facilities with new technologies and processes that will enable the Group to produce safely and competitively while limiting its environmental footprint.
	• Research Platforms	• Coordinate the Group's six cross-business research platforms, which target areas with strong development potential.
	• Partnerships	• Set up partnerships with academic research teams and industrial partners (customers, suppliers and even competitors).
Raw Materials and Energy Procurement	Raw Materials and Energy Procurement Europe, North America and Asia (China and Southeast Asia)	• Secure and optimize the procurement of raw materials, energy and packaging for the Group in the short- and medium-term. • Select suppliers according to their ability to meet the Group's purchasing requirements and to adhere to Arkema's corporate social responsibility (CSR) policy.
Digital Transformation	Centralized coordination of the digital managers appointed within the corporate departments and Business Lines	• Define the Group's digital transformation strategy and roadmap. • Implement the appropriate governance and organizational structure. • Coordinate the various initiatives undertaken within the Group.
Commercial Excellence	Global coordination and management of the sales network	• Deploy best practices across the sales network. • Promote cross-business cooperation and the adoption of new tools. • Strengthen the close-to-the-customer approach and the development of associated innovations.

1.4 MATERIAL CONTRACTS

In the ordinary course of its business, Arkema has entered into a number of contracts, including multi-year sales contracts, agreements that relate to certain operating procedures at its production sites and contracts to secure access to raw materials or energy resources. The contracts that represent a material source of supply or financial income for certain Group activities are described in sections 1.2 or 2.1 of this document, as appropriate.

To the best of the Group's knowledge, there are no other material contracts outside those entered into in the ordinary course of its business.

In connection with the Spin-Off of Arkema's Businesses in 2006, Total S.A. and certain Total group companies have made certain guarantees or commitments for the benefit of Arkema relating to Arkema's actual or potential environmental liabilities arising from certain sites in France, Belgium and the United States, at which operations have ceased in the majority of cases. These guarantees and commitments are described in note 29 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this document.

RISKS AND INTERNAL CONTROL

2

The different parts constituting the annual financial report are identified in the table of contents by the pictogram AFR

2.1 MAIN RISKS

Arkema carries out its business activities in a rapidly changing environment, which creates various risks that may be beyond its control. The items described below constitute the main risks and uncertainties to which Arkema considers itself to be exposed at the date of this document. The occurrence of one or more of these risks could have a material adverse impact on the Group's business activities, financial position, results or future prospects, as well as on its image and reputation.

At the date of this document, the main risks identified have been categorized as follows, after taking into account the probability of their occurrence and the estimated severity of their unfavorable impact:

- industrial risks;
- risks relating to compliance, societal expectations and internal control;
- operational risks;
- project and innovation risks;
- economic and business risks;
- IT risks;
- financial risks;
- talent and skills risks; and
- insurance cover default risks.

However, this list is not exhaustive and other risks of which Arkema is currently unaware or that it deems not to be significant at the date of this document could also occur and adversely affect its business activities, financial position, results or future prospects, as well as its image and reputation.

The means implemented by Arkema to identify, assess and manage risks, particularly the set-up and regular update of its risk map, are outlined in section 2.2 of this chapter. The means implemented by Arkema to understand and manage each of the main risks that it faces and to reduce the probability of their occurrence are described in this section. However, Arkema cannot provide any absolute certainty or fully protect the Group, in any manner, against the risks described in this chapter or the losses that could be incurred should such risks materialize.

Furthermore, in the normal course of its business, Arkema is or may become a party to a number of administrative, legal or arbitration actions, suits and proceedings, as a result of which it and/or its employees may be found liable on various grounds, such as violating the various laws applicable to the Group, full or partial failure to fulfill contractual obligations, termination of established business relationships, pollution, non-conformity of products, non-compliance with export control regulations, or violating anti-corruption laws.

A description of the most significant current or potential litigation is given in note 20 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this document.

To the best of the Company's and the Group's knowledge, there are no other administrative, legal or arbitration proceedings currently underway, or with which the Company or the Group are threatened, that are likely to have or have had over the course of the past twelve months a material adverse impact on the results or financial position of the Company or the Group. However, it cannot be ruled out that, in the future, new proceedings, related or unrelated to existing proceedings, could be initiated against an Arkema entity. Should such proceedings have an unfavorable outcome, they could adversely impact Arkema's business activities, financial position or results.

Lastly, in 2018, as part of the review and update (as the case may be) of its risk map and in order to take into account certain regulatory changes and to better anticipate them, Arkema focused on the specific nature of the risks to which it considers itself to be exposed as well as on factoring in the non-financial issues outlined in chapter 4 of this document.

Specific risks are highlighted. Risks related to non-financial issues are identified by the CSR icon.

2.1.1 Industrial risks

Arkema's business activities are subject to frequently changing international and national laws and regulations in the areas of environmental protection and health and safety. These laws and regulations impose increasingly strict obligations, particularly concerning industrial safety, emissions and discharges to air, water and land of toxic or hazardous substances (including waste), use of resources, labeling, traceability, handling, transportation, storage and disposal of toxic or hazardous substances and exposure thereto, the clean-up of past industrial sites, and soil and groundwater remediation.

The industrial risks described below are considered in view of the potential impact they could have both on Arkema and on the environment and stakeholders.

Accidents at sites, external storage or warehouse facilities or during transportation CSR

Because of the very nature of the Group's operations and the level of hazard, toxicity or flammability of certain raw materials, finished products and production or supply processes, different kinds of accidents (such as explosions, fires and pollution) may occur at Arkema's facilities, at storage and warehouse facilities used by Arkema or during the transportation of various products and raw materials by road, rail, sea or air.

In particular, Arkema operates many industrial facilities, including 35 "Seveso" classified sites in Europe (as defined by the 2012/18/EU directive of the European Parliament and Council dated 4 July 2012 on the control of hazards linked to major accidents involving dangerous substances) and facilities outside Europe that have been given a similar classification, in which hazardous substances that may present significant risks to the health or safety of neighboring communities and to the environment are used, produced or stored.

Arkema also owns or uses a small number of pipelines to transport hazardous chemical products. Despite the safety measures it has put in place for the operation of these pipelines, the possibility of an accident cannot be ruled out.

Arkema may suffer the consequences of possible malicious acts against its facilities or equipment.

Any accident, regardless of whether it occurs at one of the Group's production sites or during the transportation or use of products manufactured by Arkema, may adversely affect the operation of certain units at its industrial sites and cause delays in production. Arkema could also be held liable (i) following injury or damage to property or people, notably due to exposure to hazardous substances being used, produced or destroyed by Arkema or present on its sites, or (ii) for having caused damage to natural resources. In addition, any accident may give rise to compensation claims on grounds of contractual liability (in particular in its role as the shipper, in the case of transportation), tort liability or, as appropriate, product liability.

Lastly, accidents to persons constitute a general risk for Arkema. Among the accidents reported, those related to exposure to chemicals account for less than 10% of all accidents to persons.

Risk management

In order to prevent and limit the risk of accidents, the Group defines scenarios that enable it to assess and anticipate the consequences of various events such as the potential consequences of climate change, which could increase the frequency and intensity of certain weather events (storms, flooding, droughts).

As part of its preventive measures, all Arkema facilities and activities worldwide are covered by a Group-wide safety management program adapted to the risks that each may face. In the particular case of France, Technological Risk Prevention Plans (PPRTs) (created by French law no. 2003-699 of 30 July 2003 on the prevention of technological and natural risks and compensation for damage) form part of the Group's risk management policy for areas in which high-risk "upper-tier Seveso" industrial sites are located. Arkema has completed the necessary studies for the 16 relevant French sites and is implementing the appropriate additional resources, working alongside the local authorities to further secure the facilities in compliance with the regulatory processes.

The continuous improvement process, which concerns both Group and subcontractor employees and has been developed in line with the Group's health, safety, environment and quality policy, is based on taking action at three priority levels:

- at the technical level, for example when designing or improving production units, or drawing up specifications for hazardous material transportation equipment;
- at the organizational level, by ensuring that each entity's management system complies with Arkema's safety requirements; and
- at the human level, by strengthening social dialogue and developing a safety culture that raises awareness of each person's individual responsibility and of the importance of behavior.

These points are detailed in section 4.3 of this document.

In addition, in order to prevent or minimize the risk of accidents related to transportation and storage, Arkema endeavors to:

- use transportation means that are deemed less dangerous (barge, pipeline, road-rail or rail), when technical and financial conditions allow it;
- strictly select suppliers based on the Warehouse Safety and Quality Assessment System (SQAS) which was established under the aegis of the European Chemical Industry Council (CEFIC) by a consortium of European chemical manufacturers and which also covers the Middle East and Asia, and the Chemical Distribution Institute – Terminals (CDI-T) scheme at the global level;
- assess the quality and safety performance of the carriers used;
- ensure regular maintenance of the transportation equipment that it owns, hires or leases (freight cars, ISO containers, tankers and pipelines);
- carry out systemic risk assessment studies when a modal shift is required;
- implement a variety of operational risk assessment measures, including vetting bulk charter vessels and having the transportation safety management system maintained by the Group's Transportation Safety team, which reports to the Group Safety and Environment department; and

- conduct storage audits prior to signing contracts – repeated every three years for warehouse facilities housing hazardous materials – under the responsibility of the relevant business management.

For pipelines, Arkema notably carries out hazard studies and develops compensatory measures to minimize risks where necessary, defines monitoring and response plans, and carries out drills with the emergency services.

Security directives are regularly updated in line with recommendations from the public authorities in order to strengthen the security of the Group's industrial facilities. In France, the Group's upper-tier Seveso sites have undergone and are regularly subject to security audits by the authorities, with no evidence found of significant deviations from required standards. The audits led to minor adjustments being made where necessary. In addition, Arkema has raised security levels at its industrial facilities and R&D centers since 2015 in response to terrorist attacks in France, Germany, the United Kingdom and elsewhere. In particular, additional security measures have also been taken in response to malicious acts at other industrial companies in France.

Furthermore, in order to effectively manage potentially critical situations on Group sites and during transportation, Arkema has defined crisis management procedures for its various plants based on the Group Crisis Management directive. A year-round on-call system enables the Group to supervise any crisis that may occur by setting up a dedicated crisis management team. The Group also regularly offers training courses in "Crisis management and communication" and conducts simulations of crises and of setting-up of crisis management teams. These procedures were notably implemented in response to the industrial accident that occurred at the Crosby site in the United States in 2017.

Lastly, Arkema has taken out insurance policies for civil liability and property damage with leading insurance companies (for further details, see section 2.2.6 of this chapter).

Pollution at sites, warehouse facilities or during transportation CSR

Arkema has activities in business areas that entail significant environmental liability risks, with respect to both the operation of its industrial units and to accidents at one of Arkema's production sites, at a warehouse or during the transportation of products manufactured by Arkema.

While the Group has secured insurance policies from leading insurance companies to cover environmental risks, described in section 2.2.6 of this chapter, it cannot rule out the possibility that claims will be made in connection with its operations or products, seeking to hold it liable for uninsured events or for amounts exceeding the cover limits.

Should Arkema be held liable for environmental claims, the amounts covered by provisions or included in its investment plans could prove to be insufficient due to the intrinsic uncertainties involved in projecting expenditure and liabilities relating to the environment. The assumptions used to determine these provisions and investments may need to be adjusted, mainly due to changes in regulations, changes in the interpretation or application of regulations by the relevant authorities, the technical, hydrological or geological constraints of environmental remediation or the identification of as yet unknown pollutants. Achieving compliance with environmental protection regulations for Arkema sites that are still in operation or were previously operated, or for sites where operations have ceased, is likely to generate substantial financial costs for Arkema.

Contingent environmental liabilities are detailed in note 20 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this document.

Risk management

Environmental risk is managed by the implementation of a policy defined and monitored by the Environmental Remediation team within Arkema's Safety and Environment department and rolled out within its various businesses under the responsibility of the industrial Vice-Presidents. The components of this policy are detailed in section 4.3.3 of this document.

Arkema also benefits from guarantees from subsidiaries of Total S.A. with respect to former industrial sites, which were granted prior to Arkema's stock market listing. A description of these guarantees can be found in note 29 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this document.

Exposure to chemicals CSR

Arkema has used toxic or hazardous substances to manufacture its products in the past, and continues to do so. Employees and former employees of Arkema and, in some cases, employees of external companies and service providers, Arkema customers and people living near Arkema's industrial sites may have been exposed or may still be exposed to these substances (ingestion, inhalation, skin contact, etc.) and, as a result, may have developed or may develop specific illnesses from such exposure. In addition, for certain substances currently regarded as risk-free, chronic toxicity, even at very low concentrations or exposures, could be discovered in the future.

Furthermore, certain Arkema Group products may also be used directly or indirectly in sensitive applications, such as medical and food applications.

Risk management

Through product stewardship, Arkema takes care to ensure that its products do not impact people's health or safety. These aspects are taken into account during the product design stage. Regulatory compliance plays a key role in ensuring product safety for customers, the entire value chain and stakeholders.

Arkema has put in place safety and monitoring procedures for its products and the products it uses in its manufacturing processes. It also regularly conducts research on the toxicity of its products and the products it uses, and in addition has developed a tool for monitoring individual exposure to toxic products. For this purpose, Arkema employs regulatory experts supported by a global network of correspondents based in the industrial sites, within the businesses and subsidiaries, and experts in physicochemistry, toxicology and ecotoxicology who work to improve knowledge and understanding of the hazard characteristics of the substances and products used, manufactured, imported and marketed by Arkema. The various procedures in place are described in section 4.2.4 of this document.

In the particular case of medical applications, Arkema has put in place strict rules governing the applications for which Arkema markets its products. In addition, two committees – the Europe/Asia Medical Device Risks Committee and its equivalent for the Americas – are responsible for giving their preliminary opinion regarding all decisions in this area. Arkema, as the case may be, may also be forced to withdraw certain products from the market or to cease using certain substances or find substitutes for them in its manufacturing processes, particularly in certain sensitive markets.

Group employees who may potentially be exposed to toxic or hazardous substances in the workplace benefit from medical monitoring adapted to the specific risks related to their activities. When they leave the Group, particularly for retirement, they may benefit, in accordance with applicable legislation, from specific post-occupational medical monitoring established on the basis of information provided by Arkema on the hazardous chemicals they handled over the course of their professional career.

Industrial relocation

Arkema owns most of the land on which its industrial sites are built, but some of the Group's industrial facilities around the world are located on land that belongs to third parties, either due to local regulations or for technical or strategic reasons. In such cases, Arkema occupies the land under the terms of leases or similar agreements. If these agreements were to be terminated or not renewed, or if a site were to be expropriated, it could adversely impact Arkema's business activities, results or financial position.

In addition, Arkema's external growth transactions could expose it to unforeseen legal obligations towards public authorities or other parties in relation to real property acquired, held or rented by the companies acquired. This could have a material adverse affect on the Group's business activities, results or financial position (for further details, see section 2.1.4 of this chapter).

Risk management

When negotiating contracts, Arkema secures its right to occupy land by implementing sufficiently long terms and lengthy notice periods. Contractual expiration dates are monitored regularly to anticipate any problems regarding renewals. Where applicable, in the event of an expropriation, the Group endeavors to negotiate compensation with a view to reducing future costs related to rebuilding or relocating the units concerned.

2.1.2 Compliance, societal expectations and internal control

Non-compliance with business practices CSR

The Group operates in many countries and, for this reason, is subject to a range of antitrust and anti-corruption laws as well as export control regulations in certain countries. Non-compliance with any of these laws or regulations may result in significant fines being levied on the Group or civil or criminal charges being brought against it and/or its employees.

Risk management

Arkema has put in place a business compliance and ethics program, which notably covers antitrust, export control and anti-corruption laws. Procedures and/or guides have been issued on each of these topics. Training is also given within the Group to prevent risky behavior and maintain a suitable level of awareness in these areas. For further details on this program and related procedures see section 4.4 of this document. Consequently, Arkema is particularly careful with regard to:

- planned export sales to countries subject to economic sanctions or other restrictive measures. In such situations, in-depth reviews are carried out to avoid any risk of violating the export control regulations; and
- the third parties with which it enters into contracts, notably the choice of commercial intermediaries used in order to minimize the risk of corruption or fraud.

A specific map of corruption-related risks has been drawn up, as part of the general risk map exercise performed by the Group (see section 2.2.4 of this chapter). It is intended to serve as a guide for implementing procedures to assess customers, suppliers and intermediaries.

Regulatory requirements and CSR expectations CSR

Arkema is subject to complex and constantly changing local, national and international laws and regulations that differ depending on the countries in which it operates. These laws and regulations encompass a large number of fields, including safety, environmental protection, company law, commercial law, patent protection, labor law, personal data protection, tax law, customs regulations, and product listing. Non-compliance with any of these laws or regulations could result in significant fines being levied on Arkema or civil or criminal charges being brought against it and/or its employees.

If existing product regulations were to be amended to become more restrictive for Arkema or if new regulations were issued, it could (i) compel Arkema to significantly scale back on or even discontinue the production and marketing of certain products, (ii) restrict Arkema's ability to alter or expand its facilities, and (iii) possibly compel it to abandon certain markets, incur significant expenditure to produce substitute substances, institute costly emissions control or reduction systems or (iv) exclude Arkema from certain markets if it could not develop substitute products. Changes in tax and customs duty regulations could jeopardize certain schemes which Arkema currently benefits from.

In addition, societal expectations of civil society, non-governmental organizations and associations are gathering momentum and may, in certain cases, lead to more stringent requirements in various areas of the business, such as product stewardship, environmental management and increased consideration of impacts related to climate change and human resources management.

Risk management

All of the Group's operational and corporate departments, both at the corporate and local levels, assisted by the Group's Legal department and, where necessary, specialist law firms or the relevant government authorities, work continuously to ensure that a high level of knowledge is maintained and to anticipate any future developments in order to comply with the applicable laws and regulations at all times.

The Group is supported by a global network of regulatory experts based in the industrial sites, within the businesses and subsidiaries. These experts are more specifically responsible for monitoring regulatory changes and producing the documents required to comply with the regulations within the prescribed time. These experts are involved in professional associations that monitor proposed legislative or regulatory changes at the state or agency level, thus helping the Group to anticipate regulatory changes and prepare accordingly.

Regarding product regulations, particularly the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) regulation, Arkema has put in place a specific organization to optimize the implementation of these regulations and monitor any changes. For further details, see section 4.2.4 of this document.

In cases where product regulation changes lead to restrictions on the use of raw materials or the marketing of finished products, Arkema relies on its R&D to develop alternative solutions. Concerning fluorogases, for example, which have been identified as the most exposed to regulatory developments for many years now, Arkema proactively works to develop new blends or substitutes. For further details on this matter, see section 1.2.2.3 of this document.

Internal control failure

Arkema has put in place an internal control system whose primary purpose is to reduce the occurrence of incidents and limit their potential impact. However, as for any control system, it cannot provide absolute assurance that the goals mentioned in section 2.2.1 of this chapter will be met and that risks will be eliminated.

In particular, a failure in the system cannot be ruled out, especially at small or geographically isolated subsidiaries.

Risk management

The Group's internal control and risk management system and in particular its organization, main stakeholders and framework, are detailed in section 2.2 of this chapter.

2.1.3 Operational risks

Supply chain disruption

Arkema's customer supply chain may be interrupted due to supplier default, the unexpected shutdown of a production site, or a disruption affecting transportation, logistics or storage and warehousing facilities. Disruptions or extended shutdowns impacting a production site may result from problems with raw material or energy resource supplies, industrial action or even natural disasters as well as serious government-declared health crises.

Regarding transportation, due to stricter regulations on the transportation of hazardous materials, the temporary or permanent lack of transportation means for certain toxic or hazardous products to certain destinations, the market dominance of a single supplier, and industrial action affecting transportation, Arkema may face delays in delivery or even refusal by its carriers to collect shipments, difficulties in meeting certain customer demands, increases in certain shipping costs or shipping equipment rental costs and reductions in certain shipments.

Arkema uses many storage and warehousing facilities located on its industrial sites and elsewhere. The temporary unavailability of these storage facilities may lead to a production disruption or suspension at certain Group sites or to delays in delivery for certain customers.

Risk management

In order to prevent or minimize the risks related to the transportation and storage of its raw materials and own products, Arkema endeavors to strictly select suppliers based on the Warehouse Safety and Quality Assessment System (SQAS) which was established under the aegis of the European Chemical Industry Council (CEFIC) by a consortium of European chemical manufacturers and which also covers the Middle East and Asia, and the Chemical Distribution Institute – Terminals (CDI-T) scheme at the global level. Arkema also endeavors to diversify its service providers and, in particular, split its product shipments between several carriers where possible. Lastly, the Group develops alternative solutions that combine transportation plans and distribution schemes, with a lag time for implementation, and can set up geographical swaps with other manufacturers.

Dependency on suppliers and customers

Suppliers CSR

In the case of certain raw materials, equipment and services (storage in particular) that are essential to its business, Arkema is to a significant extent dependent on a limited number of suppliers and, in some cases, a single supplier. Default by a major supplier, the non-renewal of supply contracts for certain raw materials or their renewal on less favorable terms, and significant price increases could therefore have an adverse impact on Arkema's industrial and financial performance.

In particular, the Group entered into certain multi-year supply contracts, including those governing Arkema's supply of propylene and oxo alcohols, hydrofluoric acid (HF) and cyclododecane (CDAN), which are used as a main raw material for acrylic monomers, fluorogases and polyamide 12, respectively. In addition, Arkema France signed an electricity supply agreement with EDF covering some of its industrial sites for a 25-year period (1996-2020) in return for payment to EDF of a sum corresponding to a drawing right. Beyond 2020, Arkema France will have to negotiate new supply conditions with electricity providers for its industrial sites. There is a possibility that these conditions will be significantly less favorable than the current ones.

Furthermore, long-term agreements entered into with a certain number of its raw materials suppliers contain minimum supply commitments. In the event of failure to fulfill these contractual commitments or of early termination of the agreements by Arkema, these suppliers could claim compensation or penalties.

Some of Arkema's operational units in France were built downstream of steam crackers. In certain cases these units present a particularly high level of physical integration with the production capacities supplying the raw materials.

Risk management

Arkema has implemented a policy of spreading supplier risk at product-line level and at geographic exposure level for its supplies of raw materials, energy resources, services and for some equipment.

The Group's centralized procurement policy for raw materials and goods and services aims in particular to analyze and comprehensively address its exposure to the risk of significant dependence on supplies and suppliers.

This policy is based on the following principles:

- diversification of sources of supply when technical conditions allow it;
- the development of long-term partnerships or contracts for supply situations that are subject to severe structural constraints due to the supply and demand balance or the limited number of suppliers;
- careful management of the duration of contractual commitments;
- supply chain and inventory management adapted to both business and industrial requirements, particularly for strategic products;
- a thorough assessment of suppliers based on the following criteria: position in the relevant market, industrial and CSR performance, financial strength and development; and
- participation in certain investments or development projects.

With regard to the supply of propylene for the Acrylics business at the Carling site in France following the shutdown by Total Petrochemicals France of its steam cracker in Carling, a new agreement was signed on 3 September 2015 with Total, covering the period to 30 April 2021. Arkema is working with the Total group on the supply of propylene to the site beyond the end of the current agreement.

Arkema has also included the risk of supplier default in its insurance policies.

Customers

Arkema has entered into agreements representing significant financial income with certain customers, the most significant of which are described in section 1.2 of this document for each business concerned. It cannot be ruled out that these contracts may not be renewed, may be renewed under less favorable terms than initially agreed, or may be terminated.

More generally, the Group has relationships with a large number of clients, thereby exposing it to credit risk. At 31 December 2018, accounts receivable net of provisions amounted to €1,246 million. These accounts receivable are detailed by due date in note 22.4 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this document. Arkema's exposure to credit risk is linked to the individual characteristics of its customers. Default by one of these customers is likely to lead to a financial loss limited to the uninsured share of the customer's debt to Arkema.

Risk management

Arkema has a highly diversified customer base and makes less than 25% of its sales with its top forty customers. No customer represented more than 3% of its sales in 2018. Furthermore, as the Group's sales are evenly balanced across the different regions in which it operates, there is no geographical concentration of credit risk.

In addition, the Group's business policy is based on developing alliances or partnerships with certain customers in order to establish solid, long-term relationships. However, in some exceptional cases, when the customer breaches its contractual commitments, Arkema may initiate legal proceedings or arbitration to enforce its rights. For more information on disputes, please refer to note 20 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this document.

Lastly, regarding customer credit risk, Arkema covers its risk with a global credit insurance program that, given the quality of its customer portfolio and low claim rate, allows it to cover a significant proportion of its accounts receivable. Arkema is striving to further minimize this risk through a specific credit risk management policy that consists in regularly assessing the solvency of each of its uninsured customers. Uninsured customers whose financial situation does not meet Arkema's solvency requirements are only supplied after payment. For more information, please refer to note 22.4 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this document. The policy concerning provisions for doubtful accounts on fully or partially uninsured accounts receivable is also detailed in this note.

Contractual commitments

In the normal course of its business, Arkema may make commitments to its customers concerning the quality of its products and services, the quantities delivered and delivery times. Operational uncertainties may prevent Arkema from meeting its commitments, which could adversely affect its business and results, or even its reputation with its customers. The non-fulfillment of these commitments could also result in significant penalties being levied on Arkema as well as claims or even lawsuits being brought against it.

Risk management

Each Group business puts in place an industrial and commercial organization as well as a quality control system to help it fulfill its commitments. Furthermore, the Legal department supports the relevant businesses during the negotiation process for the various agreements.

After being reviewed by the Group's Legal department, material contractual commitments must be approved by the Executive Committee, which, depending on the situation, may request that a specific organizational structure be put in place.

Natural disasters and climate change

Due to their geographic location, 35 of Arkema's industrial sites are exposed to seismic and/or climate risks such as floods, droughts and storms, the severity and frequency of which may evolve as a result of climate change. In 2018, 22 sites (unchanged from 2017) were identified as being specifically exposed to climate risks.

In addition, in light of increasingly high expectations in the area of climate change response, the tightening of international, European and national regulations, notably those aimed at reducing greenhouse gas emissions (CO_2 quota systems), could have a negative impact on Arkema's business activities, operating costs or profitability.

Risk management

Scientists expect an overall increase in the intensity and frequency of extreme weather events. However, current knowledge does not allow Arkema to accurately describe future changes regarding its sites' exposure to the aforementioned risks. In order to prevent and limit the potential impact of natural disasters and climate change at the 35 exposed sites, the Group has defined scenarios that notably take into account the evolution and potential consequences of climate change, including the increased frequency and intensity of certain weather events, such as storms, flooding and droughts.

Following the industrial accident that took place at the Crosby site in Texas in September 2017 as a result of Hurricane Harvey, a category 4 storm, the US Chemical Safety and Hazard Investigation Board (CSB) published a report on the accident on its website on 24 May 2018, as well as a press release entitled "CSB Releases Arkema Final report". Consequently, Arkema is going to strengthen its existing risk and hazard analysis procedures to ensure periodic assessment of the potential impact of a natural disaster or extreme weather event at its sites, within the deadline imposed by the CSB. At the same time, Arkema is developing an extreme weather planning and response toolbox to ensure that critical safeguards, such as backup power, function as intended during extreme weather events, including hurricanes or floods.

In addition, Arkema endeavors to reduce the greenhouse gas emissions generated by its operations and energy use, and also strives, through its innovation, to adapt its product range in order to reduce emissions across its value chain. Fluorogases, for example, have been identified as the products that have been most exposed to regulatory developments for many years. Accordingly, Arkema is already anticipating the applicable regulatory changes by developing new blends or substitutes. The various initiatives taken and the results achieved as part of the fight against global warming are presented in section 4.3.3.2 of this document.

2.1.4 Project and innovation risks

Strategic projects

In order to implement its strategy and develop its business, Arkema carries out a number of investment projects. The completion of these projects may be delayed and/or result in expenses in excess of those budgeted by the Group.

Arkema also carries out acquisitions that may expose the Group to various risks, including in particular the risk of bearing potential liabilities or responsibilities related to the businesses acquired (notably relating to real estate owned or leased by companies acquired by Arkema). In addition, should the assumptions on which the acquisitions were made fail to materialize or if the development prospects of these activities cannot not be achieved, this could consequently impact the valuation of goodwill.

Furthermore, Arkema holds non-controlling interests in certain companies, which could lead to disagreements or deadlocks, and in certain cases that are beyond Arkema's control, to decisions that go against Arkema's interests. In addition, despite all the precautions taken when choosing partners, the Group cannot rule out the possibility that one of its partners could file for bankruptcy. The interests included in the Group's scope of consolidation are described in the notes to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this document.

Any delay, expense and/or additional investment or even any revaluation of goodwill could adversely impact Arkema's business activities, results or financial position.

Lastly, when Arkema disposes of businesses, it may provide a number of guarantees to third parties. It cannot be ruled out that when some of these guarantees are invoked, the compensation claims could exceed the provisions made by Arkema.

Risk management

Arkema has demonstrated its ability to carry out significant projects and has acquired solid experience in this area over the years. For each of its investments, the Group solicits the necessary internal and external resources and expertise to ensure its projects are implemented under the best possible conditions.

Before entering into any external growth transaction, Arkema takes the necessary precautions when identifying targets, in particular by conducting in-depth evaluations of the activities and companies concerned and the various liabilities related to the business being sold, and by negotiating appropriate guarantees from the sellers or putting in place insurance cover for the same purpose with the advice of external consultants with expert knowledge in this area. Furthermore, acquisitions are carried out by teams of qualified experts under the responsibility of the Strategy department.

Arkema has a small number of non-controlling or joint-controlling interests in joint ventures, and accordingly protects its interests by introducing, where possible, contractual provisions designed to resolve deadlocks and maintain the Group's decision-making powers.

Lastly, Arkema's policy in terms of business disposals is to limit its liability with respect to guarantees to the buyers.

Innovation and technologies CSR

Innovation is a key part of Arkema's strategy. Its business activities, results and future prospects are heavily reliant on its ability to produce new products and new applications and to develop new production processes and protect the innovations derived from its research.

In the course of its business, Arkema also uses technologies that it owns or technologies under license from third parties. If Arkema were no longer able to use these technologies, it could have an adverse impact on its business activities or results.

Risk management

Each year, Arkema invests heavily in R&D to develop new products and processes that answer to both market demands and social challenges. This major focus on innovation also enables the Group to adapt to regulatory changes. The organization and policy priorities of the Group's R&D, as well as the resources dedicated to R&D are detailed in section 1.1 of this document.

Furthermore, Arkema has a technological development policy for its processes, in particular as part of its R&D programs, to give it ownership and control over the technologies that it uses in its major activities, and to help reduce its level of exposure to third parties in this regard.

Protecting data and know-how

The patents and trademarks that protect the innovations derived from Arkema's research represent a key asset for its business. Aside from having an instantly negative impact on Arkema's results, patent or trademark infringements committed by a third party and any other types of intellectual or industrial property rights infringements could also harm the reputation and the perceived quality of the products concerned as well as the image of the Group. Arkema could also infringe a patent involuntarily, given the time during which patent applications are not made public. Patent applications filed by third parties and made public only on publication could therefore have an impact on ongoing developments or even products recently brought to market and could oblige Arkema to modify its product, thereby increasing the related R&D costs, or to negotiate a license to use the patented component.

Furthermore, the disclosure of confidential documents or the copying of processes or technologies that are critical to its production and to maintaining its international competitiveness could also adversely affect its business activities or results.

Risk management

Arkema has developed an assertive policy to protect its innovations and know-how through the registration of patents and trademarks, particularly with the support of a global network of industrial property consultants. The Group's intellectual and industrial property rights are managed by the Intellectual Property department, which reports to the R&D department for patent matters and to the Group's Legal department for trademark and design matters. These departments are mindful of any infringements that may be committed against the Group's intellectual and industrial property rights and can, where required, take whatever action they deem necessary to prevent those infringements, halt them and obtain redress for said infringements. When new products, applications and processes are being developed, the departments also verify whether a given technology can be freely used in order to prevent any patent infringement due to such use. More information on the role of these departments can be found in section 1.1.3 of this document.

When it comes to protecting sensitive data and their confidentiality, particularly in the area of technology, the Group has strengthened its security policy by updating its procedures and application guides, which are applicable at all of the Group's sites, and has introduced an awareness-raising and training program for its employees. Lastly, Arkema subcontracts equipment essential to its critical processes to specific companies bound by confidentiality agreements. Files and technical manuals are managed by a restricted number of individuals.

2.1.5 Economic and business risks

Fluctuations in supply and demand

As part of its operations, Arkema is exposed directly or indirectly to changes in supply and demand of the products it manufactures, the raw materials it purchases and the markets it serves.

Upstream of its activities, the Group uses raw materials and energy resources to manufacture its products, some of which are indirectly linked to the price of crude oil like propylene or butadiene, while others, such as sulfur, castor oil and fluorspar, are only minimally connected or not at all. The prices of these raw materials and energy resources can be highly volatile and therefore lead to significant variations in the cost price of the Group's products.

Downstream, external factors such as economic conditions, the Group's competitors' activities or even international situations and events, can lead to volatility in supply and demand and consequently changes in the sales volumes and prices of products manufactured and marketed by the Group.

Furthermore, Arkema faces strong competition in each of its businesses, the strengthening of some of its competitors and the emergence of new players that could impact its competitive position. Regarding the Group's intermediate product lines, some competitors are larger and more vertically integrated, which could enable them to benefit from lower production costs for certain products that are also manufactured by the Group. The economic emergence of certain countries like China, has been accompanied by the rise of local competitors, leading to growing competition on certain product lines, such as Fluorogases and Acrylics. This could result in lasting downward pressure on the selling prices of these products.

Risk management

Upstream of its activities, Arkema seeks to secure its raw material and energy supplies and to optimize their cost by diversifying its sources of supply. In some cases, the Group may therefore use derivatives such as futures, forwards, swaps and options, on both exchange and over-the-counter markets. These derivatives are matched with existing contracts (see notes 22.5 and 23.2 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this document). Arkema also seeks to pass on to its sales prices any increases in the cost of the raw materials used to manufacture its products.

To minimize its exposure to fluctuations in demand in its end markets, the Group has worked to reposition its business in order to diversify its product portfolio and application markets, and re-balance its geographical presence. Arkema is also continuing to consolidate its positioning in higher value-added niche markets, a strategy that notably allows it to offset potential slowdowns in its main end markets. Taken together, these strategies enable the Group to mitigate the risk related to worsening economic conditions in any one of its end markets. Lastly, the Group's integration in certain product lines such as acrylics, fluorochemicals and specialty polyamides also reduces its exposure to market cycles.

In addition, the Group is forging partnerships with customers and suppliers who are leaders in their respective fields in order to build strong, long-term business relationships with its main partners.

Lastly, with a view to consolidating its competitive position, Arkema has since its creation implemented a policy of operational excellence and cost optimization to enhance the competitive advantages that it enjoys in its various product lines and to guarantee the quality and performance of the products offered to its customers.

Country-related risks

Arkema's worldwide operations expose it to a multitude of local business risks. Its global success depends in particular on its ability to adapt to economic, social and political changes in each of its host countries.

In particular, the direct and indirect consequences of conflicts, embargoes, sudden changes in customs duties, terrorist activities, political instability or the emergence of health risks in countries where the Group is active or markets its products could notably cause delays in product delivery or the supply of raw materials, as well as losses. In addition, they could lead to increased costs for products manufactured by the Group as well as higher safety costs, insurance premiums or other expenses needed to ensure the continuity of the concerned operations.

Risk management

With its balanced geographic presence in Europe, North America and Asia, the Group is able to spread its risk between the different geographic regions in which it operates.

To develop and implement effective policies and strategies in each of its foreign operations, Arkema relies on subsidiaries, which are placed under the supervision of a regional Vice-President, in most countries in which it has industrial and commercial operations. This organization helps the Group maintain relations with local authorities and economic players, defend its interests, and better anticipate changes in the local political and economic environment.

As part of its compliance and business ethics program, Arkema has put in place procedures that cover export control and other restrictive regulations applicable in some countries. For further details, see section 2.1.2 of this chapter.

2.1.6 IT risks

In an increasingly digital world, industrial and management processes and communication between employees and third parties are highly dependent on information technology systems based on complex and ever-changing technical environments. The failure of these systems could have a material impact on the Group's business activities, results or financial position.

The main cyber and other risks related to IT systems are as follow:

- technical risk of an interruption in the operation of critical applications or the loss of sensitive data, resulting in the shutdown or serious disruption of the operation of all or part of one or more industrial units or departments; and
- risk of intrusion or malicious use of the IT systems, particularly to steal information, misappropriate funds, disrupt the operation of industrial facilities or impede the Group's business activities.

Risk management

The Group's IT department aims to provide systems access to authorized users while ensuring the integrity and confidentiality of sensitive data.

Accordingly, the Group has adopted an IT Systems Security Policy that sets out the objectives and rules to be applied to guarantee the reliability of its IT systems based on the three criteria of availability, integrity and confidentiality. The policy is regularly reviewed and updated. The Group has also defined and implemented an internal directive to bolster the security of its industrial networks, as well as a regular compliance audit plan at its production sites.

Pursuant to this policy, the IT department implements a variety of initiatives, including technical measures (network protection, high-availability architectures with data replication, redundant data centers, standard workstation architecture with up-to-date antivirus software, segregation of industrial networks, etc.) and organizational measures (remote access for key employees, IT systems monitoring, enhanced ID and access-right security management, regularly tested business recovery plans, formal classification of information, user awareness-raising, annual reviews of IT risks, security patch management policy, etc.). In order to minimize any incidents brought about by the rollout of new versions of software or hardware, strict management procedures are in place, including non-regression testing.

The Security Operations Center, which has been partly operational since April 2018 and is set to be fully operational as of April 2019, also boosts the overall level of the Group's IT security by increasing its surveillance and response capacity in the event of a security breach of its IT systems.

To ensure the reliability of the Group's critical processes and compliance with security rules, the Group has set up an internal control system consisting of a number of general IT controls. The effectiveness of these measures, particularly in terms of cybersecurity, is assessed every year and action plans are put in place to address any identified weaknesses.

As part of its cyber risk prevention policy, the Group has implemented a set of ten directives to be followed by each site to strengthen cybersecurity at the local level. Accordingly, the technical requirements of the Group's IT systems security policy comprise a behavioral component with the implementation of the iSafe program to raise employee awareness in the areas of data protection and cybersecurity. Lastly, the Group has taken out an insurance policy for cybersecurity risks with leading insurance companies (see section 2.2.6 of this chapter).

2.1.7 Financial risks

Arkema is exposed to various types of financial risks, such as foreign currency risk, liquidity risk, interest rate risk and counterparty risk.

The information provided below is based on certain assumptions and expectations that, by nature, may prove to be inaccurate, particularly with respect to changes in exchange rates and interest rates, and Arkema's exposure to the associated risks.

Foreign currency

Given its international operations, Arkema is exposed to various types of currency risks:

- transaction risks related to Arkema's day-to-day operations and development projects;
- translation risks related to the consolidation in euros of Arkema's subsidiaries' accounts in currencies other than the euro. Fluctuations in the exchange rates of these currencies, particularly the US dollar-to-euro exchange rate, have had in the past and may have in the future a material impact on Arkema's financial position and operating income. The translation effect of a 10% change in the euro/US dollar exchange rate, for example, would have an estimated impact on consolidated EBITDA of €50 million. For further details about the impact of the translation effect on Arkema's income statement and balance sheet, see sections 5.1.5 and 5.1.9 of this document; and
- risk of competitiveness related to the fact that, proportionately, in the euro zone, the Group incurs more operating expenses in euros than it generates sales in the currency owing to the fact that it is an export-focused company. As a result, Arkema's competitive position may be affected by the weakness of certain currencies, and in particular the US dollar against the euro, compared with its competitors positioned in countries with a weak currency. Furthermore, the weakness of certain currencies in countries with major imports from Arkema may affect its results.

Risk management

Arkema's objective is to minimize the impact of exchange rate fluctuations on its results and financial position.

Transactional risks are systematically hedged when recorded in the accounts: Arkema companies hedge their foreign currency assets and liabilities against their respective functional currencies. Revenues and costs in foreign currencies are hedged essentially by spot foreign exchange transactions and sometimes by forward transactions.

Foreign currency risk linked to future flows, such as capital expenditure or sales flows, particularly export sales, may also be hedged. The Executive Committee is responsible for deciding whether such hedging is necessary, while implementation is carried out by the Financing and Treasury department using simple derivatives. For further details, see notes 22 and 23 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this document.

Translation risk is not hedged as Arkema considers that it is inherent to its worldwide operations. However, Arkema reduces its balance sheet risk through a policy of allowing its companies to contract debt only in their functional currencies, except when a foreign-currency loan is backed by a commercial risk in the same currency.

The risk of lower competitiveness has gradually decreased thanks to Arkema's strategy to achieve a greater balance in its geographic exposure.

Liquidity

Arkema has conducted a specific review of its liquidity risk and deems it is in a position to meet its future commitments.

Arkema uses bond issues and loans from banking institutions to finance its day-to-day operating requirements and development. However, unforeseen needs may also arise, resulting in particular from an increase in working capital or unfavorable market conditions. Additionally, market conditions may make it difficult to refinance bonds at maturity, or one or more banks may be unable to meet their obligations to Arkema with respect to one of its main credit lines, which would significantly reduce its access to financing under equivalent terms. For further details on borrowing terms and in particular on early repayment clauses, see notes 21 and 22 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this document.

Risk management

Arkema's financing policy, implemented by the Financing and Treasury department, aims to provide the Group with the necessary financial resources to fund its operations over periods of time adapted to its repayment ability. This policy is based on the following principles:

- having Arkema's long-term credit rated by two rating agencies and maintaining a solid investment grade rating;
- having a net debt to EBITDA ratio of less than 2;
- maintaining cash reserves in excess of €500 million;
- maintaining average maturity at over three years; and
- diversifying its sources of financing.

At 31 December 2018, Arkema had a strong financial profile, with:

- a net debt to EBITDA ratio of 0.7;
- cash reserves of around €2.1 billion; and
- a Euro Medium Term Note (EMTN) program, representing a maximum amount of €3 billion, to facilitate access to bond markets.

At the date of this document:

- without taking into account the issue of perpetual hybrid bonds classified as equity, completed on 29 October 2014, the average maturity of Arkema's financial resources is greater than four and a half years; and
- Arkema's long-term credit ratings are BBB+ (stable outlook) according to Standard & Poor's and Baa2 (positive outlook) according to Moody's.

Interest rate and counterparty

Due to its borrowing and cash investments, Arkema is exposed to the risk of fluctuations in the interest rates on its variable-rate financing and investments, and on the arrangement of new fixed-rate financing.

At 31 December 2018, the amount of cash invested with banking institutions or money market funds amounted to €1,441 million. Default by any one of these counterparties is likely to lead to a financial loss limited to the amount invested with the defaulting counterparty and therefore to an adverse impact on Arkema's results.

Risk management

Arkema's policy is to minimize the impact of interest rate fluctuations on its financing costs while simultaneously optimizing such costs. Interest rate risk exposure is managed by the Group's Financing and Treasury department and is hedged using simple derivatives.

Arkema gives priority to fixed-rate borrowing, whereas its investments are made at variable rates. At the date of this document, a 1% increase in interest rates would reduce the cost of net debt by around €7 million. In addition, part of its debt is hedged using currency swaps and is therefore exposed to changes in the difference between short-term interest rates in euros and those in the foreign currencies concerned. For further details, see notes 21 and 22 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this document.

Furthermore, as part of its liquidity management strategy, Arkema centralizes the management of its financing resources and requirements and applies the following principles:

- Arkema recycles the financial surplus of its subsidiaries through intra-Group current accounts wherever local regulations permit;
- any new relationship between an Arkema subsidiary and a banking or financial institution is first approved by the Financing and Treasury department; and
- Arkema minimizes its exposure to counterparty risk by investing only in highly secure assets with leading diversified counterparties.

For further details, see note 22 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this document.

2.1.8 Talent and skills risks CSR

Arkema's success is deeply linked to the quality and commitment of its employees and, as a result, to its ability to attract, integrate, motivate, promote and retain skilled employees across all regions.

Difficulties in hiring or retaining skilled employees or even the departure of experienced employees (via resignation or retirement) could hamper the implementation of the Group's strategy and have a negative impact on its business activities and financial position. Given that 32% of Arkema's employees are over 50 years old at the date of this document, the Group needs to organize an effective skills transfer process from that generation to a new generation of employees in the coming years.

Furthermore, in some cases, Arkema's activities rely on technologies that require specific skills from its employees.

Risk management

Arkema has implemented numerous initiatives aimed at attracting quality candidates, retaining top employees and reinforcing, notably thanks to targeted training, their skills and, as a result, the Group's overall expertise. For further details on the human resources development and talent management policy, see section 4.4.1 of this document.

Arkema's compensation policies value and reward fairly each employee's contribution to the Group's success. Arkema has also rolled out long-term incentives to motivate and retain employees (incentive schemes, profit-sharing plans, employee shareholding and performance shares). For further details, see sections 3.5 and 4.4.1.3 of this document.

Lastly, Arkema ensures that skills in certain sensitive technologies are shared by a sufficient number of employees in order to safeguard know-how within the Group.

2.1.9 Insurance cover default risks

Arkema's insurance policy is part of the overall risk management framework and, as such, is described in detail in section 2.2.6 of this chapter.

At the date of this document, Arkema believes that the limits of insurance cover described in said section take into account the type of risks it incurs. However, in some cases, the possibility that Arkema could be required to pay substantial compensation for claims that are not covered by the existing insurance program, or that it will incur very large expenses that will not be reimbursed or only partially reimbursed under its insurance policies, cannot be excluded.

Arkema selects its insurers from the best and most financially sound companies when taking out policies. However, the possibility cannot be ruled out that, at the time of settling a claim, one or more of these insurers could be in a difficult, even compromised, financial situation that puts payment of the compensation in doubt. Furthermore, developments in the insurance market could result in unfavorable changes to the Group's insurance policies and an increase in policy premiums.

The Group's insurers, under certain conditions deemed customary in the insurance industry for those types of contracts, can prematurely terminate insurance policies in the event of a major claim. In such an event, the Group nevertheless remains covered throughout the notice period, which may vary depending on the policy.

Risk management

Since its creation, Arkema has maintained a department dedicated to the investment and management of the Group's insurance cover, backed by international insurance brokers to optimize and bolster its cover.

The Group issues regular calls for tenders to insurance brokers and insurers in order to ensure that it is always informed of the best offers available on the market. Insurance cover and insurers are selected based on objective criteria including price, the extent of coverage and the strength, experience and quality of the insurers.

2.2 GLOBAL INTERNAL CONTROL AND RISK MANAGEMENT PROCEDURES

2.2.1 General organization: objectives and scope of internal control and risk management

OBJECTIVES

Arkema applies the Reference Framework of the French financial markets authority (*Autorité des marchés financiers* – AMF), published in 2007 and subsequently reviewed and expanded in 2010, which it has adapted to its business activities, size and organization.

Internal control is a Group-wide process defined and implemented by executive management, management and employees. Its objective is to ensure:

- compliance with current laws and regulations;
- compliance with the instructions and guidelines issued by executive management;
- the smooth operation of internal processes, notably those serving to protect assets; and
- the reliability of financial information.

Generally, internal control contributes to the management of Arkema's activities, the effectiveness of its operations, and the efficient use of resources.

However, no internal control process can provide absolute assurance that these goals are met. Despite the processes and controls in place, it cannot guarantee that all Arkema employees will constantly comply with the internal control guidelines and apply all the defined procedures.

Arkema has also implemented a risk management system that enables the Executive Committee to ensure that risks are at a level that it deems acceptable. This system contributes to:

- creating and protecting Arkema's value, assets and reputation;
- securing Arkema's decision-making and other processes so that objectives may be achieved more easily;
- ensuring consistency between Arkema values and actions; and
- rallying Arkema employees around a common vision of the main risks.

SCOPE

The internal control and risk management procedures are adapted to Arkema's organization, which is structured around three components:

- the three divisions, each comprising Business Lines, which are responsible for their respective performance and the implementation of internal control procedures (see section 1.2 of this document);
- the corporate departments (or support functions), which assist the divisions and businesses in their area of competence, such as accounting, human resources, legal affairs, IT and procurement, and ensure the coherence and optimization at the Group level (see section 1.3 of this document); and
- the subsidiaries, in which Arkema performs its business activities (see section 6.1.2 of this document).

These internal control and risk management procedures apply to all fully consolidated Arkema Group companies. Internal control is not limited to procedures that improve the reliability of financial and accounting information.

2.2.2 Persons involved in internal control and risk management

BOARD OF DIRECTORS AND COMMITTEES

The Board of Directors, the two committees in place (the Audit and Accounts Committee and the Nomination, Compensation and Corporate Governance Committee) and their members through their experience and expertise, contribute to the promotion of an internal control and risk management culture adapted to Arkema's activities.

In particular, it is the responsibility of the Audit and Accounts Committee to oversee the effectiveness of internal control and risk management systems, and assess the schedule of the internal auditors and the results of their work.

EXECUTIVE COMMITTEE

The Executive Committee implements the internal control process and ensures compliance by:

- defining the internal control framework and the rules for delegating responsibility;
- setting targets for each business, corporate department and subsidiary, and ensuring they have the resources for meeting these targets;
- supervising the implementation of the control procedures that help achieve the targets it has set;
- assessing the risks specific to each project submitted to the Executive Committee; and
- carrying out a review (annually and as deemed necessary) of Arkema's major risks, based on the work of the Risk Review Committee and its risk mapping presentation. In order to carry this out effectively, the Executive Committee relies on the Internal Audit and Internal Control department and the expertise of all its own members.

Each member of the Executive Committee is responsible for ensuring that the Internal Control Framework's Group-wide rules and principles (as described in section 2.2.3 of this chapter) are observed in the entities and, in particular, the businesses that he or she supervises.

RISK REVIEW COMMITTEE

A Risk Review Committee was set up in October 2007 to strengthen the formal framework of risk identification, analysis and management, and to regularly monitor the development of risk factors. It is made up of the Strategy Executive Vice-President (committee Chairman), the Industry Executive Vice-President, the Chief Financial Officer, the Legal Affairs Vice-President, the Sustainable Development Vice-President, the Group Safety and Environment Vice-President, the Insurance Vice-President and the Internal Audit and Internal Control Vice-President (committee secretary).

Every six months, or more often in response to specific events, the committee reviews:

- summaries of audits and assessments carried out by the Internal Audit and Internal Control, the Safety, Environment and Quality and the Insurance departments;
- reports on fraud or attempted fraud prepared by the anti-fraud unit;
- a summary and progress report of ongoing disputes presented by the Legal department;
- assessments of commercial intermediaries made by the commercial intermediaries review commission;
- a list of risks identified in the surveys carried out by the Internal Audit and Internal Control, Legal, and Accounting and Controlling departments;
- a risk map prepared by the Internal Audit and Internal Control department; and
- the monitoring of corrective measures in all of these areas.

Following its review, the Risk Review Committee can decide on further corrective measures or request additional information, and can also request updates to the risk map.

The conclusions of its review are reported to the Executive Committee which, upon completion of the process, may decide whether or not to update the main risks described in section 2.1 of this chapter.

The Risk Review Committee met twice in 2018.

INTERNAL AUDIT AND INTERNAL CONTROL DEPARTMENT

The Internal Audit and Internal Control department is made up of the Internal Audit sub-department and the Internal Control sub-department, both of which are independent functions under the responsibility of the Strategy Executive Vice-President.

The role of Internal Audit is principally to improve and develop controls in Arkema's management systems and processes and, more broadly, to ensure that its operating procedures comply with the Internal Control Framework.

All processes and management systems may be subject to an internal audit. The Internal Audit department discusses and agrees its findings with the audited entities before presenting them with a set of recommendations and related action plans that the entities commit to implementing.

An internal committee consisting of the Chief Financial Officer, the Strategy Executive Vice-President and the Internal Audit and Internal Control Vice-President regularly ensures that the recommendations have been followed.

The Internal Audit and Internal Control department defines a draft proposal for the audit plan based on:

- risk identification initiatives;
- interviews with Arkema's operational and corporate departments; and
- a selection of priorities from the various proposals gathered.

The final program is validated by the Executive Committee, and then approved by the Audit and Accounts Committee.

In 2018, the Internal Audit department carried out the following 38 audits:

- 7 audits of industrial sites and 1 audit of a research center in France and the United States;
- 16 audits of subsidiaries in Europe, Asia and South America;
- 3 process audits in Europe;
- 8 audits of businesses in Asia, Europe and North America;
- 3 follow-up audits in the United Kingdom and the United States.

The primary mission of Internal Control is to strengthen Arkema's internal control systems. Its initiatives are communicated and implemented, at subsidiary level, by a network of correspondents within the subsidiaries' Finance and IT departments.

Internal Control is involved in the analysis and formal implementation of processes that impact financial information, for which key controls have been defined.

The methodology consists of:

- analyzing the main risks of error, omission or fraud in processes or sub-processes, which could have a material impact on Arkema's consolidated financial statements;
- identifying and implementing control procedures to minimize any risk of error, omission or fraud;
- periodically checking the existence and effective operation of these controls, carried out by the Internal Control correspondents based in the subsidiaries (self-audit) or by the Internal Audit department; and
- defining corrective measures in the event of shortcomings and overseeing their implementation.

The list of procedures covered by this methodology is based on the 14 procedures of the AMF Reference Framework application guide published in 2007 and updated in 2010. It is adapted to the specific features and size of the subsidiaries.

All significant subsidiaries were covered by Arkema's internal control system in 2018.

DIVISIONS, BUSINESS LINES, CORPORATE DEPARTMENTS AND SUBSIDIARIES

Arkema is organized into divisions as described in section 1.2 of this document. The divisions are made up of Business Lines, which coordinate the use of the resources required to meet the targets set in their respective areas. Each business is responsible for its own performance and for implementing suitable control procedures and processes, in accordance with the principles and procedures defined in Arkema's Internal Control Framework, Code of Conduct and Business Ethics, charters and guidelines.

The corporate departments ensure that Arkema's organization is consistent and optimized.

Each subsidiary is placed under the responsibility of a local executive who is responsible for employing the resources defined with the businesses and the support functions to meet the subsidiary's targets, in accordance with current laws and the rules and principles defined by Arkema.

2.2.3 Internal control framework

Arkema's internal control and risk management systems are based on three core principles:

- clear definition of responsibilities and delegations of authority, observing rules governing the segregation of duties (in particular distinguishing between those who perform actions and those who approve them), to ensure that any person who makes commitments to third parties on behalf of Arkema has the authority to do so;
- identification, analysis and management of risks; and
- regular reviews, notably via annual internal control assessments and the internal audit program, to ensure internal control and risk management systems operate correctly.

Arkema's Internal Control Framework defines its organization and the guiding principles behind its operating procedures. Approved by the Executive Committee and available to all employees, notably via the intranet, it is based on the Safety, Health, Environment and Quality Charter, the Users' Guide for IT Resources and Electronic Communication, and the Code of Conduct and Business Ethics put in place by Arkema, available on Arkema's website under the heading "Ethics and integrity". In line with the AMF Reference Framework published in 2007 and updated in 2010, the Internal Control Framework is based on five components:

- control environment;
- risk management (detailed in section 2.2.4 of this chapter);
- control activities;
- information and communication; and
- continuous assessment of internal control systems.

CONTROL ENVIRONMENT

The control environment is the basis for the other components of internal control and refers primarily to Arkema's organizational principles, its values as set out in the Code of Conduct and Business Ethics and the level of awareness among employees.

All employees are informed of the importance attached to observing the rules of proper conduct set out in the Code of Conduct and Business Ethics, the Health, Safety, Environment and Quality Charter, and the Users' Guide for IT Resources and Electronic Communication.

Arkema has put in place a compliance program, which mainly covers antitrust, export control and anti-corruption laws. Each area is the subject of various procedures and/or guides, which are provided to employees. To ensure that the compliance program has been followed, the Group's Legal department sends a declaration of compliance each year to the heads of the businesses, the corporate departments and the main subsidiaries and sites, which they must sign and return to show that they are aware of the compliance program, that they have acted in accordance with it over the past year, and that they undertake to continue to do so in the coming year. These heads are then responsible for obtaining an identical declaration, signed by the employees concerned within their business, corporate department, subsidiary or site.

A fraud prevention procedure has been put in place to record and centralize situations of fraud and therefore improve their handling and prevention.

In general, the roles and duties of every operational and corporate manager are set out in a job description. Their objectives, which include an internal control dimension, are set by their respective line manager, to whom they must periodically report on their activities.

Lastly, Arkema has set up a dynamic human resources management approach and a policy of ongoing training designed to ensure that employees' skills are continuously adapted, and to maintain a high level of individual engagement and motivation.

CONTROL ACTIVITIES

Control activities involve applying the standards and procedures that help ensure that Group management directives are implemented at every level of the Arkema Group.

To this end, a set of regulations has been formally documented in the Internal Control Framework, and general principles applicable to all Arkema entities have been defined in order to be able to control the application of the operating procedures defined by the Executive Committee. For example, delegations of authority and investment management are the subject of specific notes.

- Businesses and subsidiaries are responsible for operational processes and therefore for internal control.
- Corporate departments are responsible for defining and communicating policy and best practice guidelines relating to their area of expertise and ensuring that they are correctly applied, particularly in the following fields:
  - compliance with laws and regulations;
  - safety and environmental protection; and
  - the reliability of financial information.
- Controlling access to IT systems forms a key part of internal control and is subject to a formal management process, which involves both the departments using the systems and the IT department.

The Internal Audit team conducts assessments of Arkema's compliance with its Internal Control Framework in accordance with the audit plan validated annually by the Executive Committee and approved by the Audit and Accounts Committee.

INFORMATION AND COMMUNICATION

IT systems are a key component of Arkema's organization.

Mindful of the opportunities and risks related to the use of information technologies, Arkema has set up an IT governance structure to control risks while creating value and improving performance.

This approach consists of deploying Group-wide the ten IT management practices drawn up formally by the French IT association for major companies, CIGREF (*Club informatique des grandes entreprises françaises*), as part of Arkema's IT systems security policy (for more details, please refer to section 2.1.6 of this chapter).

Additionally:

- Arkema has a highly detailed financial reporting system, an essential management tool used by executive management;
- the main internal control documents are available on Arkema's intranet; and
- each support function develops professional best practices and communicates them throughout Arkema via the intranet.

CONTINUOUS ASSESSMENT OF INTERNAL CONTROL SYSTEMS

The internal control system is assessed on an ongoing basis. The Executive Committee is responsible for the overall internal control system, its performance and its oversight. However, each subsidiary is responsible for improving internal control performance within its own scope.

In general, any weaknesses in the internal control system must be reported to line management and, if necessary, to the Executive Committee.

In addition, recommendations made by the Internal Audit department on completion of its audits are systematically reviewed, and a summary is presented to the Audit and Accounts Committee. When decisions to apply corrective measures are adopted, their implementation is monitored on a formal basis.

Furthermore, as part of their engagement, the statutory auditors may alert Arkema (represented by the Finance department and the Internal Audit and Internal Control department) and the Group's Audit and Accounts Committee regarding any weaknesses that they may have identified. These factors are taken into account by Arkema in its efforts to improve internal control.

2.2.4 Risk identification and management

In the course of its business, Arkema is exposed to a number of internal and external risks.

As Arkema's structure is highly decentralized, risk assessment and management is the responsibility of the businesses, corporate departments and subsidiaries. Each of these entities has a duty to reduce the risks inherent in their activities.

Arkema's risk management system is based on regular reviews of risk identification, analysis and treatment, as follows:

- every month, each business presents its results and indicators to its operational Executive Vice-President, member of the Executive Committee, and the Executive Committee reviews the results of the divisions and their respective businesses;
- the Accounting and Controlling department organizes a quarterly review of risks and legal disputes that may have to be reported in Arkema's financial statements. The businesses, corporate departments and subsidiaries report on their entity's risks, which are analyzed and addressed at quarterly meetings with the Chief Financial Officer, the Accounting and Controlling department, the Legal department, and the Internal Audit and Internal Control department; and
- the Internal Audit and Internal Control department carries out an annual survey of risks amongst Arkema's main entities, namely the businesses, corporate departments and subsidiaries. The risks are identified and analyzed and the most significant generic risks are positioned on a risk map, which is presented to the Risk Review Committee. The Risk Review Committee then assesses the need to update the risk map and puts forward suitable action plans where necessary. As part of this generic risk map, certain specific risks may be presented on an additional map. The Committee's conclusions are reported to the Executive Committee prior to the definition of the internal audit plan. This plan is drawn up on the basis of the risk map and the need to cover Arkema's scope of activity on a regular basis. Material risks known to Arkema are allocated to a member of the Executive Committee. They are also examined by the Audit and Accounts Committee and presented to the Board of Directors. The main risks are set out in section 2.1 of this chapter, where they have been classified into the following sections:
  - industrial risks,
  - risks relating to compliance, societal expectations and internal control,
  - operational risks,
  - project and innovation risks,
  - economic and business risks,
  - IT risks,
  - financial risks,
  - talent and skills risks,
  - insurance cover default risks.

2.2.5 Accounting and financial control procedures

Operational and corporate managers' control and understanding of their business' financial performance represent one of the key factors in Arkema's financial control system.

ORGANIZATION OF THE FINANCE FUNCTION

The finance function is the responsibility of the Chief Financial Officer and includes:

- an Accounting and Controlling department, which produces the consolidated financial and accounting information, ensures the reliability of the data constituting Arkema's financial information and provides management analyses and financial forecasts to Arkema's different entities to facilitate their management;
- a Tax department, which ensures compliance with the applicable laws and regulations on tax declarations and payment and carries out the overall tax planning process for the Group;
- a Financing and Treasury department, whose role is to optimize the Group's financing and liquidity and manage counterparty risk; and
- an Investor Relations department, whose remit is to establish, develop and maintain relations with investors, shareholders and financial analysts, and publish financial information once it has been approved by the Board of Directors.

Each business has its own management control team, which monitors and analyzes the business' performance monthly, and each subsidiary is responsible for its own monthly accounts and half-year and full-year financial information.

ACCOUNTING REPORTING AND MANAGEMENT CONTROL

The Accounting and Controlling department defines the financial principles and guidelines set out in the financial reporting manual and Arkema's management framework. It also monitors accounting laws and regulations for the Group and ensures that specific technical provisions applicable to Arkema are taken into account.

The purpose of the financial reporting process, established in accordance with these principles, is to analyze actual performance compared with forecasts and prior periods. The reporting schedule is structured around:

- a five-year plan drawn up each year by the Strategy department. The plan is reviewed and approved by the Executive Committee and enables it to understand the financial consequences of the Group's major strategic choices and the main threats identified in the environment under consideration;
- an annual budget, which sets out the financial performance targets for the following year in line with the medium-term plan. The budget preparation process falls within the remit of the Accounting and Controlling department. The budget represents a key benchmark for measuring the actual performance of the three divisions, their respective businesses, the corporate departments and Arkema's subsidiaries as a whole;
- a monthly forecast and reporting process, which enables business trends to be taken into account in order to refine end-of-period forecasts for the quarter and the year. The Accounting and Controlling department prepares a consolidated report each month, by division and business, that includes the month's significant events, the performance indicators and the updated forecasts. These components are systematically reviewed by the Group's Executive Committee.

The fundamental financial reporting principles are set out in the financial reporting manual and Arkema's management framework. These reference documents are updated regularly by the Accounting and Controlling department, following approval by the Chief Financial Officer or the Executive Committee, depending on the type of amendment and its significance.

One of the main purposes of accounting-related reporting is to analyze actual performance compared with forecasts and prior periods based on the processes described below.

PARENT COMPANY AND CONSOLIDATED FINANCIAL STATEMENTS

Arkema publishes consolidated financial information on a quarterly basis. The half-year financial statements at 30 June are subject to a review by the statutory auditors and the full-year financial statements to an audit. The quarterly information to 31 March and 30 September is presented in summary form only (balance sheet, income statement and cash flow statement). Press releases concerning financial information are prepared by the Investor Relations team and submitted to the Company's Board of Directors for approval.

At the end of each accounting period, the Accounting and Controlling department reviews the financial risk portfolio with each business, corporate department and main legal entity of the Group.

The preparation of the parent company's financial statements is part of the general procedure for the preparation of annual financial information. Furthermore, the Company submits management forecast documents to the Board of Directors in compliance with regulatory provisions.

IT SYSTEMS

The IT department defines and coordinates the IT systems for the entire Group.

Arkema is continuing its transformation program using SAP integrated software, which is helping to improve the Group's control environment, particularly through procedure review, improved automated checks, and the removal of interfaces.

REPRESENTATION LETTERS

Each year, Arkema issues a representation letter attesting in particular to the accuracy and consistency of the consolidated financial statements. This letter is signed by the Chairman and Chief Executive Officer and the Chief Financial Officer and addressed to the Group's statutory auditors. In support of this representation letter, the operational and financial heads of each consolidated subsidiary make an annual undertaking to observe the internal control rules and ensure the accuracy of the financial information supplied, in the form of a representation letter to the Group's Chairman and Chief Executive Officer, the Chief Financial Officer and the statutory auditors.

Following the same procedure, Arkema's half-yearly representation letter is based on the main subsidiaries' half-yearly letters of representation, which certify that the subsidiaries' half-yearly consolidated financial statements have been prepared in accordance with Arkema's financial reporting manual.

2.2.6 Arkema's insurance policy

Arkema implements an insurance cover strategy that combines a prevention policy designed in close cooperation with insurers (in particular for property damage, via periodic visits to the sites together which result in the regular issuance of technical recommendations implemented by the Group), and the purchasing of insurance policies.

The Group's policy is to centralize its insurance against risks relating to the production, transportation and marketing of its products worldwide. Arkema uses international insurance brokers to optimize its cover of all Group companies. As a general rule, the Group's insurance cover limits apply either to each claim, or to each claim and each year, and vary according to the risks covered. In most cases, cover is limited both by certain exclusions standard to these kinds of contracts and by deductibles that are reasonable given the size of the Group.

For the financial year ended 31 December 2018, total premiums paid by the Group, and relating to the Group's insurance policies presented below, amounted to less than 1% of its sales for the period.

The Group's insurance policies are drawn up to cover current risks while also accommodating any new acquisitions or disposals that may take place during the year.

The Group retains a certain level of risk through the deductibles on its insurance policies, and centrally through a captive insurance company that is active only in property insurance. The objective of the captive company is to optimize the Group's external insurance costs.

Arkema believes that its insurance policies are consistent with those currently available on the insurance market for groups of similar size and involved in similar business activities.

Descriptions of the insurance policies taken out by Arkema are provided below to a level of detail that enables it to comply with confidentiality requirements and protect its interests and competitiveness.

CIVIL LIABILITY

The Group has contracted civil liability insurance policies with leading insurance companies. The civil liability policies are subject to applicable exclusions and sub-limits but cover the Group worldwide against the financial consequences of civil liability claims in the context of its business activities and in respect of physical, material or non-material damages or losses caused to third parties. These policies cover up to €1 billion for the Group. Deductibles vary, particularly depending on the subsidiaries' location.

PROPERTY DAMAGE

The Group's sites are covered by leading insurance companies against material damage and any resulting business interruption. This cover is intended to avoid any significant financial loss and to ensure the resumption of operations in the event of property damage. However, certain property and types of damage can be excluded from the insurance policy's cover depending on the country in which the loss occurs.

The cover includes a "direct damage" component and a "business interruption" component, with the compensation period for the latter limited to either 24 or 36 months, depending on the site. These policies may include sub-limits, particularly for machinery breakdowns, natural disasters and terrorism. Deductibles vary depending on the size of the site concerned. In 2018, the maximum total retention in the event of a claim, excluding natural disasters, was €20 million. This amount is increased to €25 million in the event of a natural disaster-related claim.

The combined cover limit of the policies in place for direct damage and business interruption, over and above the total retention, is €500 million.

TRANSPORT

The Group is insured against the risk of damage to its manufacturing assets, equipment, finished or semi-finished products and raw materials during transportation or storage by third parties up to a limit of €12 million per shipment. The policy includes a deductible and several exclusions that are standard for this kind of agreement.

ENVIRONMENTAL RISKS

Arkema has taken out an environmental liability insurance program with leading insurance companies. For production sites located in the United States, the limit is US$75 million. For production sites outside the United States, the limit is €80 million.

These programs cover, under certain conditions, environmental liabilities linked to the production sites of the Group. They include in particular damages suffered by third parties as a result of pollution generated either on Group production sites or as a result of transporting Group products.

CYBER RISKS

Arkema has taken out a cyber insurance program covering all subsidiaries worldwide. The coverage ceiling was increased to €50 million with effect on 15 January 2018, with a deductible of €2 million.

CORPORATE GOVERNANCE

3

The different parts constituting the annual financial report are identified in the table of contents by the pictogram AFR

Chapter 3 constitutes the Board of Directors' report on corporate governance as required under article L. 225-37 paragraph 6 of the French Commercial Code (*Code de commerce*). This report was prepared by a working group comprising, in particular, the Secretary of the Company's Board of Directors and the Company's Investor Relations and Human Resources departments, having taken into consideration:

- the AFEP-MEDEF Corporate Governance code for listed companies, last revised in June 2018 (the "AFEP-MEDEF Code"), and its January 2019 Application Guide, available on the AFEP and MEDEF websites (www.afep.com and www.medef.com);
- the French financial markets authority (*Autorité des marchés financiers* - AMF) recommendation no. 2012-02 on corporate governance and executive compensation in listed companies referring to the AFEP-MEDEF Code, and revised most recently on 30 November 2018, after incorporating the recommendations contained in the AMF annual report for 2018 on corporate governance and executive compensation in listed companies published on 26 November 2018; and
- the recommendations of the AFEP-MEDEF *Haut Comité du Gouvernement d'Entreprise* set out in its annual report published in October 2018.

It was then reviewed by the Nominating, Compensation and Corporate Governance Committee prior to approval by the Company's Board of Directors.

The other information required under Articles L. 225-37, L. 225-37-4 and L. 225-37-5 of the French Commercial Code, namely, the table of delegations of authority currently in force that have been granted by the shareholders in relation to capital increases, the conditions of shareholder participation at general shareholders' meetings, information concerning the structure of the Company's share capital and factors likely to have an impact in the event of a takeover bid, are set out in sections 6.2.5, 6.5.1, 6.2.1, 6.3.1, 6.3.2 and 6.3.3, respectively, of this document.

With the exception of the commitment to the Chairman and Chief Executive Officer relating to compensation for termination of office, mentioned in the statutory auditors' report presented in section 7.1 of this document, there are no other agreements between any of the directors of the Company or any of its shareholders holding more than 10% of the voting rights and a company of which the Company owns more than half of the share capital. For further details on this commitment, see section 3.4.2.1 of this chapter.

3.1 COMPLIANCE WITH THE CORPORATE GOVERNANCE SYSTEM

With regard to corporate governance, the Company refers to the recommendations of the AFEP-MEDEF Code and its Application Guide, available on the AFEP and MEDEF websites (www.afep.com and www.medef.com).

In accordance with the "comply or explain" rule provided under Article L. 225-37-4, 8 of the French Commercial Code and section 27.1 of the AFEP-MEDEF Code, the Company considers, at the date of this document, that, barring exceptions for which explanations are provided in the following summary table, the Company complies with the corporate governance system in force in France.

Disregarded provisions of the AFEP-MEDEF Code	Explanations
17. The diversity of governance arrangements *"[…] The Board may appoint a senior independent director from among the independent directors […]."*	In accordance with the AFEP-MEDEF Code which has been incorporated into the Board of Directors' Internal Rules, François Enaud, who has been a director of Arkema for over twelve years on 10 May 2018 and is the senior independent director, is no longer considered independent. Nevertheless, in order to ensure continuity in the exercise of this recently-created role, especially *vis-à-vis* shareholders, the Board of Directors decided — on an exceptional basis and by derogation to its Internal Rules — to allow François Enaud to continue to serve as senior independent director until his term of office expires at the close of the annual general meeting to be held on 21 May 2019. At its meeting on 3 April 2019, the Board of Directors decided to appoint Hélène Moreau-Leroy as senior independent director to replace François Enaud from 21 May 2019 subject to her reappointment by the annual general meeting of that date.
16. The nominating committee *"[…] mostly comprising independent directors. […]"* **17. The compensation committee** *"[…] mostly comprising independent directors. […]"*	Pursuant to the AFEP-MEDEF Code – incorporated into the Board of Directors' Internal Rules – Thierry Morin and François Enaud have been directors of Arkema for over twelve years and therefore are no longer considered as independent. Consequently, the Nominating, Compensation and Corporate Governance Committee comprised at 31 December 2018 two independent directors out of four members, *i.e.* a rate of independence of 50%. After expiration of the term of office of François Enaud at the close of the annual general meeting of 21 May 2019, the Nominating, Compensation and Corporate Governance Committee will comprise two independent directors out of three members, *i.e.* a rate of independence of 67%.

Disregarded provisions of the AFEP-MEDEF Code	Explanations
17. The compensation committee *"[…] It is recommended that the Chairman of the Committee be independent […]"*	Pursuant to the AFEP-MEDEF Code – incorporated into the Board of Directors' Internal Rules – since 10 May 2018, Thierry Morin has been a director of Arkema for over twelve years and therefore is no longer considered as independent. In the context of an important renewal of its composition over the last two years, the Board of Directors which was set up ex nihilo in 2006, wishes to ensure a continuity in the chairmanship of the Nominating, Compensation and Corporate Governance Committee. As a result, at its meeting on 3 April 2019, the Board decided to maintain Thierry Morin as Chairman of the committee in order to continue to benefit from his in-depth knowledge of Arkema, its challenges and its governance principles which he contributed to develop and maintain at a level in line with best practice. The Board is convinced of the full independence of judgment of Thierry Morin and also takes into account its decision to appoint a new senior independent director on the same date.
17. The compensation committee *"[…] It is recommended […] that one of its members be an employee director."*	The director representing employees attends the Board of Directors' meetings during which compensation packages are reviewed and discussed. However, given that the Nominating, Compensation and Corporate Governance Committee deals with broader issues than merely compensation, the director representing employees is not a member of said committee. In addition, the Committee's minutes are very comprehensive and are provided in their entirety to the Board of Directors.

3.2 COMPOSITION OF ADMINISTRATIVE AND MANAGEMENT BODIES

3.2.1 Board of Directors

3.2.1.1 PRINCIPLES FOR THE COMPOSITION OF THE BOARD OF DIRECTORS

The composition and operating procedures of the Company's Board of Directors are determined by current laws and regulations, by the Company's Articles of Association and by the Internal Rules of the Board of Directors.

The Company is run by a Board of Directors comprising 13 members, six of whom are independent. The Board includes six women, one member representing shareholder employees and one member representing employees.

Type of director	Method of appointment	Term of office	Number of directors	Reference text
Directors	Annual general meeting	4 years	11	Article L. 225-18 of the French Commercial Code
Director representing shareholder employees	Annual general meeting on a proposal by the Company mutual funds' *(fonds commun de placement d'entreprise)* Supervisory Boards	4 years	1	Article L. 225-23 of the French Commercial Code
Director representing employees	Designated by the French delegation of the European Group Works Council	4 years	1	Article L. 225-27-1 of the French Commercial Code

Policy on diversity within the Board of Directors

In accordance with the provisions of Article L. 225-37-4 6° of the French Commercial Code, as amended by Law no. 2018-771 of 5 September 2018, the AFEP-MEDEF Code and the AMF recommendations on the composition of Boards of Directors, the Nominating, Compensation and Corporate Governance Committee regularly reviews the objectives relating to the diversification of the Board of Directors' membership, in terms of directors' independence, age and gender balance, as well as the range of experience, in particular international experience and skills complementarity. Consequently, the Committee, with the help of recruitment specialists, as the case may be, aims to select and propose current and former executives for Board approval with skills in areas such as industry, finance, acquisitions and integration of acquired entities, corporate social responsibility, research/innovation and information technology in view of the increasingly digitized business environment.

In terms of developing the Board's international dimension, and given the Group's recent history as an independent company, the Board of Directors has given priority to complementary skills and expertise and to the physical presence of members at its meetings while seeking candidates who have acquired significant international experience by having spent significant time working abroad. However, the Board is actively seeking to include foreign nationals as directors. In light of the renewal dates of the terms of office of its members, the Board of Directors aims to appoint, by 2021, two directors that are either foreign nationals or who have spent most of their careers outside France, in one or more countries that are strategic for the Group. Consequently, the Board of Directors has decided to propose the appointment of Ian Hudson, a British citizen, as director at the annual general meeting to be held on 21 May 2019.

At the date of this document, the Board of Directors considers that its members' skills and career paths are diverse enough to allow it to carry out its duties with the necessary independence and objectivity.

The professional expertise of each member of the Board of Directors, at the date of this document, is set out in sections 3.2.1.2 and 3.2.1.3 of this chapter.

Additional disclosures concerning the Company's aim for gender balance within its governance bodies is included in sections 3.2.2.2 and 4.4.1.5 of this document.

Independence of directors

As part of its process to assess its members' independence and to prevent risks of conflicts of interest between directors and management, the Company or the Group, the Board of Directors takes into account all the criteria of the AFEP-MEDEF Code, which are laid down in its Internal Rules as amended on 26 February 2019. Accordingly, an independent director is one who, other than his position on the Board, has no relationship whatsoever with the Company, the Group or its management. In particular, the director must not:

1. be, or have been within the last five years:
   - an employee or executive director of the Company,
   - an employee, executive director or director of a company consolidated by the Company;
2. be an executive director of a company in which the Company holds a directorship, directly or indirectly, or in which one of its employees (designated as such) or executive director (currently or in the last five years) holds a directorship;
3. be, or have been directly or indirectly linked to a major customer, supplier, consultant, corporate or investment banker of the Company or the Group, or for which the Company or Group represents a significant portion of the business;
4. have close family ties with an executive officer of the Company;
5. have been a statutory auditor of the Company in the previous five years;
6. have been a director of the Company for more than twelve years; or
7. be or represent a significant shareholder of the Company owning over 10% of the Company's share capital or voting rights.

The annual review of the independence of each member of the Board of Directors, in accordance with the AFEP-MEDEF Code and the Board of Directors' Internal Rules, took place at the Nominating, Compensation and Corporate Governance Committee meeting of 1st April 2019 and at the Board of Directors' meeting of 3 April 2019. In the course of these meetings, and upon recommendation by the Nominating, Compensation and Corporate Governance Committee, the Board of Directors noted that Thierry Morin, Laurent Mignon and François Enaud have been directors of Arkema for over twelve years and therefore are no longer considered as independent.

The Board also reviewed the business relationships in place with companies with which one or several directors are associated and, in that respect, performed materiality tests to establish whether those relationships are significant. To that end, a summary of the transactions carried out between the Group and these companies was submitted to the Board of Directors in order to assess the volume of business between the Group and each of these companies, individually. The Board of Directors thus reviewed the situation of Laurent Mignon, Chairman of the Executive Board of BPCE and Chairman of the Board of Natixis. The Board of Directors accordingly performed materiality tests to compare the fees received by all of the Group's banks and determine the share of the Group's credit commitments held by each one. These tests enabled the Board to establish that the business relationships between Arkema and Natixis were not material for Arkema and insignificant for Natixis in relation to the two companies' revenues, and that Natixis' lending commitments to Arkema represent around 13% of the Group's total confirmed credits. These commitments only concern the syndicated credit facility. In addition, standard commercial banking relationships were managed directly by the Group's Financing and Treasury department. Consequently, the Board of Directors concluded that no dependency relationship exists between the two companies.

In line with the Board of Directors' Internal Rules and with the AMF recommendations, when potential conflict of interest situations arise, the director in question does not participate in any discussions or votes on the topic in question. For further details on the management of conflicts of interest, see section 3.2.3.3 of this chapter.

In light of the foregoing and as summarized below, the Board of Directors approved the proposal made by the Nominating, Compensation and Corporate Governance Committee to qualify as independent Yannick Assouad, Marie-Ange Debon, Victoire de Margerie and Hélène Moreau-Leroy as well as Alexandre de Juniac and Marc Pandraud.

In accordance with the AFEP-MEDEF Code, which provides that the director representing shareholder employees, Jean-Marc Bertrand, and the director representing employees, Nathalie Muracciole, should not be included when calculating the percentage of independent directors, the rate of independence of the Board of Directors is 55% (six directors out of eleven). This proportion complies with the AFEP-MEDEF Code recommendation that at least half the Board members of companies with diversified capital and no controlling shareholders be independent.

SITUATION OF DIRECTORS WITH REGARD TO THE INDEPENDENCE CRITERIA SET OUT IN THE AFEP-MEDEF CODE (AND IN THE BOARD OF DIRECTORS' INTERNAL RULES)

	Company employee or executive	Cross directorships	Business relationships	Family ties	Statutory auditor	Director for more than 12 years	Significant shareholder	Independent
Thierry Le Hénaff	√	X	X	X	X	X	X	NO
Yannick Assouad	X	X	X	X	X	X	X	**YES**
Jean-Marc Bertrand	√	X	X	X	X	X	X	NO
Marie-Ange Debon	X	X	X	X	X	X	X	**YES**
François Enaud	X	X	X	X	X	√	X	NO
Alexandre de Juniac	X	X	X	X	X	X	X	**YES**
Victoire de Margerie	X	X	X	X	X	X	X	**YES**
Laurent Mignon	X	X	X	X	X	√	X	NO
Hélène Moreau-Leroy	X	X	X	X	X	X	X	**YES**
Thierry Morin	X	X	X	X	X	√	X	NO
Nathalie Muracciole	√	X	X	X	X	X	X	NO
Marc Pandraud	X	X	X	X	X	X	X	**YES**
Fonds Stratégique de Participations	X	X	X	X	X	X	√	NO

In view of the changes to the composition of the Board of Directors proposed to the annual general meeting of 21 May 2019 and as described in section 3.2.1.2 of this chapter, and provided that the shareholders approve these changes, the Board will have a larger majority of independent directors (64%) at the close of said annual general meeting.

Gender balance on the Board of Directors

In accordance with Article L. 225-17 paragraph 2 of the French Commercial Code, the Board of Directors ensures that the principle of gender balance among its members is applied, particularly when renewing each director's term of office.

At the date of this document, the Company's Board of Directors includes six women among its thirteen members, *i.e.*, 42% given that the director representing employees, Nathalie Muracciole is not taken into account when calculating the gender balance, in accordance with the AFEP-MEDEF Code.

Representation of employees and shareholder employees

In accordance with the applicable regulations, the Board of Directors includes a member representing shareholder employees, Jean-Marc Bertrand, who was appointed at the annual general meeting of 18 May 2018. As all other directors, Jean-Marc Bertrand is entitled to receive any training he deems necessary for carrying out his functions.

In addition, pursuant to the provisions of Article L. 225-27-1 of the French Commercial Code, Nathalie Muracciole was appointed on 7 July 2016 as director representing employees. The Board of Directors has set out the content of her training program for the duration of her term as a director. She is thus entitled to at least 20 hours of training per year.

Other characteristics

According to the provisions of the Company's Articles of Association and/or the Board of Directors' Internal Rules:

- subject to the laws applicable to provisional appointments made by the Board of Directors, the directors shall serve a four-year term of office. In accordance with the recommendations of the AFEP-MEDEF Code, the directors' terms of office are staggered in order to avoid reappointment of the Board *en masse*, and ensure that the directors' reappointment process runs smoothly. As the terms of office of all directors are staggered, the general shareholders' meeting is called upon every year to decide on the renewal of one or more terms of office;
- each director must hold at least 450 of the Company's shares throughout their term of office except for the director representing shareholder employees, who must hold, individually or through a company mutual fund (f*onds commun de placement d'entreprise* – FCPE) governed by Article L. 214-165 of the French Monetary and Financial Code (*Code monétaire et financier*), at least one share in the Company, or a number of units of the said fund equivalent to at least one share in the Company; the director representing employees does not have to be a shareholder;
- the age limit for directors set in the Company's Articles of Association is 70 years old and serving directors who reach this age limit are automatically considered as having resigned unless the Board decides that they may complete their term; and
- each director is subject to an obligation to report any potential direct or indirect conflicts of interest to the Company (see section 3.2.3.3 below).

3.2.1.2 COMPOSITION OF THE BOARD OF DIRECTORS

At 31 December 2018, the composition of the Board of Directors was as follows:

	Nationality	Age	Independent director	Year of first appointment	Year current term expires	Other directorships in listed companies	Audit and Accounts Committee	Nominating, Compensation and Corporate Governance Committee	Expertise
Thierry Le Hénaff Chairman and Chief Executive Officer	French	55		2006	2020	1			Chairman and Chief Executive Officer
Yannick Assouad	French	60	◆	2017	2021	2			Executive management, digital and industry
Jean-Marc Bertrand Director representing shareholder employees	French	61		2018	2022	None			IT and knowledge of the Group as an employee
Marie-Ange Debon	French	53	◆	2018	2022	2	Chairman		Executive management, finance and water management services
François Enaud Senior independent director	French	59		2006	2019	None		●	Executive management, digital
Alexandre de Juniac	French	56	◆	2018	2022	None		●	Executive management, industry and international
Victoire de Margerie	French	55	◆	2012	2019	2		●	Chemistry, industry and significant experience outside France
Laurent Mignon	French	55		2006	2019	2			Executive management, banking and finance
Hélène Moreau-Leroy	French	54	◆	2015	2019	None	●		Industry, finance and significant experience outside France

◆ *In accordance with the AFEP-MEDEF Code criteria set out in the Board of Directors' Internal Rules and as assessed by the Board of Directors.*
● *Member.*

	Nationality	Age	Independent director	Year of first appointment	Year current term expires	Other directorships in listed companies	Audit and Accounts Committee	Nominating, Compensation and Corporate Governance Committee	Expertise
Thierry Morin	French	67		2006	2021	1		**Chairman**	Executive management, industry and finance
Nathalie Muracciole Director representing employees	French	54		2016	2020	None			Human resources and knowledge of the Group as an employee
Marc Pandraud	French	60	◆	2009	2021	None			Finance and international
Fonds Stratégique de Participations				2014	2022	4			
represented by **Isabelle Boccon-Gibod**	French	51				3	●		Industry and finance

◆ *In accordance with the AFEP-MEDEF Code criteria set out in the Board of Directors' Internal Rules and as assessed by the Board of Directors.*
● *Member.*

3

The following changes to the composition of the Board of Directors took place in 2018:

Annual general meeting of 18 May 2018

Departures	Marie-José Donsion and Patrice Bréant
Appointments	Marie-Ange Debon, Alexandre de Juniac and Jean-Marc Bertrand
Reappointment	*Fonds Stratégique de Participations* represented by Isabelle Boccon-Gibod

At its meeting of 3 April 2019, the Board of Directors noted that the terms of office of Victoire de Margerie, Hélène Moreau-Leroy, Laurent Mignon and François Enaud were due to expire at the close of the annual general meeting of 21 May 2019. The Board of Directors warmly thanked François Enaud for his work at the Board, his active contribution to the Nominating, Compensation and Corporate Governance Committee and to the Group's growth and transformation since its listing, as well as for his duties as senior independent director. On the recommendation of the Nominating, Compensation and Corporate Governance Committee, the Board of Directors decided to propose reappointing Victoire de Margerie, Hélène Moreau-Leroy and Laurent Mignon at the next annual general meeting.

Consequently, at the annual general meeting to be held on 21 May 2019 to approve the financial statements for the year ending 31 December 2018, the shareholders will be asked to vote on:

- the reappointment for a four-year term of Victoire de Margerie as independent director, which will enable the Board to continue to benefit from her knowledge of the chemicals and advanced materials sectors as well as her understanding of the Group;
- the reappointment for a four-year term of Hélène Moreau-Leroy as independent director, which will enable the Board to continue to benefit from her experience in mergers and acquisitions and the integration of newly-acquired businesses, her important responsibilities in an industrial sector with high technological content as well as her significant international business experience;
- the reappointment for a four-year term as director of Laurent Mignon, who will continue to provide Arkema with his skills and experience as Chairman of the Management Board of a major banking and insurance group as well as his in-depth knowledge of Arkema which he has supported since its listing, whilst maintaining full independence of judgment; and
- the appointment for a four-year term of Ian Hudson as independent director, which will enable the Board to benefit from his long-standing experience of the specialty chemicals sector, Anglo-Saxon culture and international business experience.

Provided that the shareholders approve these appointments, Victoire de Margerie and Hélène Moreau-Leroy will continue to serve as members of the Nominating, Compensation and Corporate Governance Committee and Audit and Accounts Committee, respectively, and Ian Hudson will join the Audit and Accounts Committee. In addition, Hélène Moreau-Leroy will serve as senior independent director replacing François Enaud.

These changes are summarized in the following table:

Annual general meeting of 21 May 2019

Departure	François Enaud, member of the Nominating, Compensation and Corporate Governance Committee and senior independent director
Appointment	Ian Hudson, independent director and member of the Audit and Accounts Committee
Reappointments	Hélène Moreau-Leroy, independent director, member of the Audit and Accounts Committee and senior independent director Victoire de Margerie, independent director and member of the Nominating, Compensation and Corporate Governance Committee Laurent Mignon, director

For further details on the resolutions proposed to the annual general meeting of 21 May 2019, see section 7.2.2 of this document.

The following table summarizes the principles underlying the composition of the Board of Directors and the results obtained during the year.

SUMMARY OF THE COMPOSITION OF THE BOARD OF DIRECTORS

Composition of the Board of Directors	Objectives/priorities	Application of principles and results obtained during the year
Gender balance on the Board	At least 40% of women Board members.	Since the annual general meeting of 23 May 2017, over 40% of Board members have been women **Women Board members: 42%** at 31 December 2018
Diversity - International profiles	Appointment by 2021 of at least two directors, either foreign nationals or with significant international experience.	**International experience: 50%** at 31 December 2018
Skills complementarity (excluding the Chairman and CEO)	Current and former executive profiles with skills in areas such as chemicals, industry, finance, acquisitions and how to integrate them, corporate social responsibility, research/innovation and information technology.	• **Chemicals:** 3 • **Industry**: 7 • **Finance**: 7 • **Information/digital technologies**: 4 • **CSR**: 3
Laws and regulations	Director representing shareholder employees (holding over 3% of share capital) One or two directors representing employees (see article 10.3 of the Company's Articles of Association).	1 director representing shareholder employees 1 director representing employees since 2016
Independence of directors	A large majority of independent directors (at least 50%).	**Independence rate: 55%** at 31 December 2018
Age of directors	The maximum age is 70.	No director is over 70 years of age

3.2.1.3 INFORMATION ON THE MEMBERS OF THE BOARD OF DIRECTORS AT 31 DECEMBER 2018

Thierry Le Hénaff
CHAIRMAN AND CHIEF EXECUTIVE OFFICER

Date of first appointment: 6 March 2006

Date of last renewal: 7 June 2016

Date appointment expires: AGM held to approve financial statements for 2019 financial year

Nationality: French

Number of shares held at 31 December 2018: 205,609

Business address: Arkema, 420, rue d'Estienne d'Orves, 92700 Colombes

PROFESSIONAL EXPERIENCE

Born in 1963, Thierry Le Hénaff is a graduate of France's *École polytechnique* and *École nationale des ponts et chaussées* and holds a master's degree in Industrial Management from Stanford University in the United States. Thierry Le Hénaff was appointed Chairman and Chief Executive Officer of Arkema on 6 March 2006 and Chairman of the Board of Directors of Arkema France on 18 April 2006. He is also a member of the Board of Directors of the *École polytechnique* Foundation.

After starting his career with Peat Marwick Consultants, in 1992 he joined Bostik, Total's adhesives division, where he held a number of operational positions in France and worldwide. In July 2001, he was appointed Chairman and Chief Executive Officer of Bostik Findley, the new entity resulting from the merger of Total's and Elf Atochem's adhesives divisions. On 1 January 2003, he joined Atofina's Executive Committee, where he was in charge of three business units (Agrochemicals, Fertilizers and Thiochemicals) and three corporate departments. In 2004, he became a member of Total's management committee. On 6 March 2006, he was appointed Chairman and Chief Executive Officer of Arkema and led the Company's stock market listing on 18 May 2006.

OTHER OFFICES CURRENTLY HELD

France

Within the Group

- Chairman of the Board of Directors, Arkema France

Outside the Group

- Member of Supervisory Board and Audit Committee of Michelin*

International

- None

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2018

- None

Expired from 2014 to 2017

- Director, Eramet*

Yannick Assouad
INDEPENDENT DIRECTOR

Date of first appointment: 23 May 2017

Date appointment expires: AGM held to approve financial statements for 2020 financial year

Nationality: French

Number of shares held at 31 December 2018: 450

Business address: Latécoère, 135 rue de Périole, 31079 Toulouse Cedex 5

PROFESSIONAL EXPERIENCE

Born in 1959, Yannick Assouad is a graduate of the *Institut National des Sciences Appliquées* (INSA) based in Lyon, France, and holds a Ph.D. in aeronautical engineering from the Illinois Institute of Technology (IIT) in the United States. She is Chief Executive Officer of Latécoère group.

She started her career in 1986 with Thomson-CSF (now Thalès) where she was head of the thermal and mechanical analysis group until 1998. She then served successively as Technical Director and then as Chief Executive Officer of SECAN, a subsidiary of Honeywell Aerospace before being appointed as Chairman. In 2003, she joined Zodiac Aerospace, as Chief Executive Officer of Intertechnique Services, a position she held until 2008. Appointed to Zodiac Aerospace's Executive Committee that same year, she was selected to create the group's Services business segment, which she headed until 2010, when she was appointed Chief Executive Officer of its Aircraft Systems segment. In May 2015, she was appointed Chief Executive Officer of Zodiac Aerospace's newest segment, Zodiac Cabin. She was appointed Chief Executive Officer of Latécoère group in November 2016.

OTHER OFFICES CURRENTLY HELD**

France

- Chief Executive Officer and director of the Latécoère group*
- Director and member of the audit committee of Vinci*
- Director of *École nationale d'aviation civile* (ENAC)
- Board member of GIFAS (*Groupement des industries françaises aéronautiques et spatiales*)

International

- None

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2018

- None

Expired from 2014 to 2017

- Member of the Executive Board of Zodiac Aerospace
- Chairman and director of companies in the Aircraft Systems division and later the Cabin division of Zodiac Aerospace
- Director of the *Institut de recherche technologique Saint-Exupéry*

* *Listed company.*

** *Outside the Arkema Group.*

Jean-Marc Bertrand

DIRECTOR REPRESENTING SHAREHOLDER EMPLOYEES

Date of first appointment: 18 May 2018

Date appointment expires: AGM held to approve financial statements for 2021 financial year

Nationality: French

Number of FCPE units held at 31 December 2018: 828

Business address: Arkema, 420, rue d'Estienne d'Orves, 92700 Colombes

PROFESSIONAL EXPERIENCE

Jean-Marc Bertrand was born in 1958 and is a graduate engineer from CESI (*Centre des Etudes Supérieures Industrielles*). He is currently a project manager within the IT Infrastructures department of Arkema's iTeam (IT division).

Jean-Marc joined the Group in 1989 via Pennwalt France where he held various IT positions, and in 2006 he joined Arkema as Head of the FO department (team in charge of user tool architecture) within the IT division. Since then, he has held a number of positions in the IT division.

He has also served in several roles on employee representative bodies, namely as representative of the CFE-CGC labor union and secretary of the Arkema France Central Works Council.

OTHER OFFICES CURRENTLY HELD

France

Within the Group

- Member of the Supervisory Board, FCPE Arkema Actionnariat France

International

- None

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2018

- None

Expired from 2014 to 2017

- None

Marie-Ange Debon

INDEPENDENT DIRECTOR AND CHAIRMAN OF THE AUDIT AND ACCOUNTS COMMITTEE

Date of first appointment: 18 May 2018

Date appointment expires: AGM held to approve financial statements for 2021 financial year

Nationality: French

Number of shares held at 31 December 2018: 550

Business address: Suez, Tour CB 21 – 16 Place de l'Iris, 92040 Paris La Défense – France

PROFESSIONAL EXPERIENCE

Born in 1965, Marie-Ange Debon is a graduate of France's *École des hautes études commerciales* (HEC) and *École nationale de l'administration* (ENA), and holds a master's degree in law. She is Deputy CEO of the Suez Group in charge of France, Italy and Central and Eastern Europe since March 2018 and member of the Management Committee since 2008.

Before joining Suez Environnement in 2008, Marie-Ange Debon held several positions in both the public and private sector: as auditor and then as magistrate at the Cour des Comptes (national audit office) from 1990 to 1994. She served as Deputy Chief Executive Officer at France 3 from 1994 to 1998. In 1998, she began working with Thomson group as Deputy Chief Financial Officer, and in July 2003 became General Secretary. In 2008, she joined Suez Environnement as General Secretary in charge of legal affairs, information systems auditing, risks, insurance and purchasing. In 2013, she was appointed Head of the international division (North America, Asia, Pacific, Africa, India). She was a member of the decision-making body of the French financial markets authority (Collège de l'Autorité des marchés financiers) from 2008 to 2014 and Chairman of the MEDEF Corporate Law Committee from 2009 to 2013.

Marie-Ange Debon also serves as independent director of Technip-FMC and as Chairman of its Audit Committee.

OTHER OFFICES CURRENTLY HELD**

France

- Director and Chairman of Audit Committee, Technip-FMC*

International

- Member of various Boards of Directors of Suez Group companies, including Lydec* in Morocco

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2018

- None

Expired from 2014 to 2017

- None

* *Listed company.*

** *Outside the Arkema Group.*

François Enaud

DIRECTOR, MEMBER OF THE NOMINATING, COMPENSATION AND CORPORATE GOVERNANCE COMMITTEE AND SENIOR INDEPENDENT DIRECTOR

Date of first appointment: 10 May 2006

Date of last renewal: 2 June 2015

Date appointment expires: AGM held to approve financial statements for 2018 financial year

Nationality: French

Number of shares held at 31 December 2018: 551

Business address: Arkema, 420, rue d'Estienne d'Orves, 92700 Colombes

PROFESSIONAL EXPERIENCE

Born in 1959, François Enaud is a graduate of France's *École polytechnique* and graduated as a civil engineer from the *École nationale des ponts et chaussées*.

Between 1998 and March 2015, he was successively Chairman and Chief Executive Officer of Steria SA, Managing Partner of Steria SCA and Chief Executive Officer of the Sopra Steria Group. After spending two years as a works engineer at Colas (1981-1982), François Enaud joined Steria in 1983 where he held several management positions (Technical and Quality divisions Manager, Chief Executive Officer of subsidiaries, Transport division manager and Telecoms division manager) before being appointed Chief Executive Officer of Steria in 1997 and Chairman in 1998. In September 2014, François Enaud was appointed Chief Executive Officer of the Sopra Steria Group, which was formed following the merger of Sopra and Steria.

In September 2015, François Enaud set up the FE Développement consultancy whose corporate purpose is to develop and support a network of innovative companies in the digital economy.

OTHER OFFICES CURRENTLY HELD**

France

- Chairman, FE Développement SAS
- Chairman, Dejamobile
- Chairman, Shadline
- Partner and Director, Aston i Trade Finance
- Partner and Director, Premium Peers
- Senior Advisor, Oddo Finance
- Chairman of the Board of Directors, Agence nouvelle des solidarités actives (ANSA)
- Director, FONDACT (Association under French law of 1901 for participative management, employee savings plans, and responsible share ownership)
- Director, LinkbyNet
- Senior Advisor, Bearing Point

International

- Director, KLM

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2018

- None

Expired from 2014 to 2017

- Chief Executive Officer and Director, Sopra Steria Group*
- Chief Executive Officer, Groupe Steria SA*
- Chairman and Chief Executive Officer and Director, Steria SA
- Managing Partner, Groupe Steria SCA

Alexandre de Juniac

INDEPENDENT DIRECTOR AND MEMBER OF THE NOMINATING, COMPENSATION AND CORPORATE GOVERNANCE COMMITTEE

Date of first appointment: 18 May 2018

Date appointment expires: AGM held to approve financial statements for 2021 financial year

Nationality: French

Number of shares held at 31 December 2018: 450

Business address: IATA, 33 route de l'aéroport, PO BOX 416, 1215 Genève 15 Aéroport – Switzerland

PROFESSIONAL EXPERIENCE

Born in 1962, Alexandre de Juniac holds degrees from France's *École polytechnique* and *École nationale de l'administration* (ENA). He has been CEO of the International Air Transport Association (IATA) since 1 September 2016.

Alexandre de Juniac began his career with the French Council of State *(Conseil d'État)* from 1988 to 1993, where he served as auditor, counsel and then deputy general secretary. From 1993 to 1995, he served as technical advisor and then deputy Chief of Staff to Nicolas Sarkozy, then France's Budget Minister. In 1995, he joined Thomson SA (now Thalès) as Director of the development plan. He was appointed sales Director of Thalès Avionics in 1997, then General Secretary of Thalès (1999-2004), Chief Operating Officer of Thalès Air Systems (2004-2008) and Chief Executive for Asia, Africa, Middle East and Latin America in May 2008. From June 2009 to September 2011, he served as Chief of Staff under Christine Lagarde, France's Minister for the Economy, Finance and Employment. He was Chairman and Chief Executive Officer of Air France from 2011 to 2013, then served as Chairman and Chief Executive Officer of Air France-KLM until July 2016. Alexandre de Juniac was also a member of Vivendi's Supervisory Board from 2013 to 2017.

OTHER OFFICES CURRENTLY HELD**

France

- None

International

- CEO of the International Air Transport Association (IATA).

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2018

- None

Expired from 2014 to 2017

- Chairman and Chief Executive Officer, Air France-KLM*
- Member of the Supervisory Board, Vivendi*

* *Listed company.*

** *Outside the Arkema Group.*

Victoire de Margerie
INDEPENDENT DIRECTOR AND MEMBER OF THE NOMINATING, COMPENSATION AND CORPORATE GOVERNANCE COMMITTEE

Date of first appointment: 7 November 2012

Date of last renewal: 2 June 2015

Date appointment expires: AGM held to approve financial statements for 2018 financial year

Nationality: French

Number of shares held at 31 December 2018: 450

Business address: Rondol Industrie, 2 allée André Guinier, 54000 Nancy

PROFESSIONAL EXPERIENCE

Born in 1963, Victoire de Margerie is a graduate of France's *École des hautes études commerciales* (HEC) and *Institut d'Études Politiques* (IEP), holds a DESS in Private Law from the Université de Paris 1 - Panthéon - Sorbonne, and a Ph.D. in Management Science from the Université de Paris 2 - Panthéon - Assas. She has been Chairman and principal shareholder of Rondol Industrie, a micromechanics SME, since 2012. She is also Vice-Chairman of the World Materials Forum and a Director of Eurazeo (France) and Babcock International (United Kingdom).

She previously held operational positions in industry in Germany, France and the United States at Elf Atochem, CarnaudMetalbox and Pechiney. Between 2002 and 2011, Victoire de Margerie also taught strategy and technology management at the Grenoble Management business school.

OTHER OFFICES CURRENTLY HELD**

France
- Chairman, Rondol Industrie
- Member of the Supervisory Board, Eurazeo*

International
- Director, member of the nominating and compensation committee and member of the audit and risk committee of Babcock International Group Plc.*

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2018
- None

Expired from 2014 to 2017
- Chairman of the Board of Directors, Soitec*
- Director, Écoemballages
- Director, Morgan Advanced Materials* (United Kingdom)
- Director, Italcementi* (Italy)
- Director, Norsk Hydro* (Norway)
- Member of the Supervisory Board, Banque Transatlantique

Laurent Mignon
DIRECTOR

Date of first appointment: 10 May 2006

Date of last renewal: 2 June 2015

Date appointment expires: AGM held to approve financial statements for 2018 financial year

Nationality: French

Number of shares held at 31 December 2018: 300

Business address: Groupe BPCE, 50 avenue Pierre Mendès France – 75201 Paris Cedex 13 – France

PROFESSIONAL EXPERIENCE

Born in 1963, Laurent Mignon is a graduate of France's *École des hautes études commerciales* (HEC) and the Stanford Executive Program. He has been Chairman of the Executive Board of BPCE since 1 June 2018.

For over ten years he held a number of positions in the banking sector at Banque Indosuez, from trading to investment banking. In 1996, he joined Schroders in London, followed by AGF in 1997 as Finance Director, and was appointed member of the Executive Committee in 1998. In 2002, he was given responsibility for investments at AGF Asset Management and AGF Real Estate successively, and, in 2003, of the Life and Financial Services as well as Credit Insurance departments. From September 2007 to May 2009, he was Managing Partner, alongside Philippe Oddo, of Oddo & Cie. He then served as Chief Executive Officer of Natixis SA until 31 May 2018.

OTHER OFFICES CURRENTLY HELD**

France
Within the BPCE group
- Chairman of the Executive Board, BPCE
- Chairman of the Board of Directors, Natixis SA*
- Chairman of the Board of Directors, Crédit Foncier de France
- Director, Compagnie Nationale de Prévoyance (CNP)*

Outside the BPCE group
- President, Fédération bancaire française (FBF)

International
- None

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2018
- Chief Executive Officer, Natixis SA*
- Chairman of the Board of Directors, Natixis Global Asset Management
- Chairman of the Board of Directors, Coface SA*
- Chairman of the Board of Directors, Natixis Assurance

Expired from 2014 to 2017
- Director, Lazard Ltd*

* *Listed company.*

** *Outside the Arkema Group.*

Hélène Moreau-Leroy

INDEPENDENT DIRECTOR AND MEMBER OF THE AUDIT AND ACCOUNTS COMMITTEE

Date of first appointment: 2 June 2015

Date appointment expires: AGM held to approve financial statements for 2018 financial year

Nationality: French

Number of shares held at 31 December 2018: 450

Business address: Safran, 46 rue Camille Desmoulins, 92130 Issy les Moulineaux

PROFESSIONAL EXPERIENCE

Born in 1964, Hélène Moreau-Leroy is a graduate of the *Institut National des Sciences Appliquées* (INSA) based in Lyon, France, and holds a Master in International Business Administration from Australia's University of New England. She is an APICS-Certified Supply Chain Professional and is currently Director of the Zodiac Aerospace integration project at Safran.

Hélène Moreau-Leroy has held various management positions in the areas of research and development, project management, procurement and production with different industrial groups and spent 14 years in international positions outside France. She joined the Safran group in 2003, as a member of the Snecma SA group purchasing department. She was subsequently given responsibility for organizing Messier-Bugatti Dowty's supply chain in emerging markets, before becoming the company's programs director and a member of its Management Committee. She held the position of Chairman of Safran Transmission Systems from 2013 to 1 December 2017, when she was appointed to head up the integration of Zodiac Aerospace.

She is also a member of the management committee of the French association of aerospace and military equipment manufacturers (*Groupement des Équipementiers de l'Aéronautique et de la Défense* – GEAD) and of various networks and associations set up to promote workplace diversity.

OTHER OFFICES CURRENTLY HELD**

France
- None

International
- Director, Safran Aero Booster (Belgium)

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2018
- Director, SEM-MB

Expired from 2014 to 2017
- Chairman, Safran Transmission Systems

Thierry Morin

DIRECTOR AND CHAIRMAN OF THE NOMINATING, COMPENSATION AND CORPORATE GOVERNANCE COMMITTEE

Date of first appointment: 10 May 2006

Date of last renewal: 23 May 2017

Date appointment expires: AGM held to approve financial statements for 2020 financial year

Nationality: French

Number of shares held at 31 December 2018: 1,281

Business address: Arkema, 420, rue d'Estienne d'Orves, 92700 Colombes

PROFESSIONAL EXPERIENCE

Born in 1952, Thierry Morin holds a degree in management from the *Université de Paris IX - Dauphine*. He is Chairman of Thierry Morin Consulting and of TM France.

Thierry Morin joined the Valeo group in 1989, where he held various positions, including divisional finance director, Group finance director, head of strategy and purchasing, before becoming Executive Vice-President in 1997, Chief Executive Officer in 2000, Chairman of the Management Board in 2001, and then Chairman and Chief Executive Officer from March 2003 to March 2009. Prior to that, he held various positions at Burroughs, Schlumberger and Thomson Consumer Electronics. He has also been Chairman of the Board of Directors of the Université de Technologie de Compiègne (until 2017) and Chairman of the Board of Directors of INPI *(Institut national de la propriété industrielle)*.

OTHER OFFICES CURRENTLY HELD**

France
- Chairman, Thierry Morin Consulting (TMC)
- Manager, TM France
- Chairman of the Supervisory Board, Elis*

International
- Chairman, TMPARFI SA (Luxembourg)

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2018
- None

Expired from 2014 to 2017
- Chairman of the Board of Directors, Université de Technologie de Compiègne

* *Listed company.*

** *Outside the Arkema Group.*

Nathalie Muracciole
DIRECTOR REPRESENTING EMPLOYEES

Date of first appointment: 7 July 2016

Date appointment expires: AGM held to approve financial statements for 2019 financial year

Nationality: French

Business address: Arkema,
420, rue d'Estienne d'Orves,
92700 Colombes

PROFESSIONAL EXPERIENCE

Born in 1964, Nathalie Muracciole holds a degree in Law from the *Université de Créteil* in France. Since 15 January 2018, she has been responsible for developing the Group's skills sets within the human resources development department.

She began her career in 1983 in the Total group as an executive assistant with CDF Chimie (which later became Orkem). She then became career manager for the professional markets division at Sigma Kalon. After several years as recruitment/employment and training/communication manager with Mapa Spontex, she joined Atofina in 2003. She was appointed corporate training manager with Arkema in 2004, served as human resources and employee relations manager for the headquarters between 2006 and 2012 and was in charge of change management as part of the Ambition project between 2012 and 2017.

OTHER OFFICES CURRENTLY HELD**

France
- None

International
- None

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2018
- None

Expired from 2014 to 2017
- None

Marc Pandraud
INDEPENDENT DIRECTOR

Date of first appointment: 15 June 2009

Date of last renewal: 23 May 2017

Date appointment expires: AGM held to approve financial statements for 2020 financial year

Nationality: French

Number of shares held at 31 December 2018: 500

Business address: JP Morgan 14 place Vendôme, 75001 Paris – France

PROFESSIONAL EXPERIENCE

Born in 1958, Marc Pandraud is a graduate of France's *École supérieure de commerce de Paris* (ESCP Europe). He has been Vice-Chairman of investment banking for Europe, the Middle East and Africa at JP Morgan since 14 April 2016.

Marc Pandraud began his career as an auditor with Peat Marwick Mitchell (1982-1985). He was subsequently Vice-Chairman of Bear Stearns & Co Inc. (1985-1989), Chief Executive Officer of SG Warburg France S.A. (1989-1995) and Chief Executive Officer of Deutsche Morgan Grenfell (1995-1998). He then joined Merrill Lynch as Managing Director of Merrill Lynch & Co Inc. (1998) and Chief Executive Officer of Merrill Lynch France (1998) before becoming Chairman of Merrill Lynch France (2005-2009). In 2009, he moved to Deutsche Bank to take up a position as Chairman of the bank's French operations, going on to serve as Vice-Chairman of Deutsche Bank Europe, Middle East and Africa between June 2013 and January 2016.

OTHER OFFICES CURRENTLY HELD**

France
- Vice-Chairman of investment banking for Europe, the Middle East and Africa at JP Morgan

International
- None

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2018
- None

Expired from 2014 to 2017
- Vice-Chairman, Deutsche Bank Europe – Middle East and Africa

* *Listed company.*

** *Outside the Arkema Group.*

Fonds Stratégique de Participations

DIRECTOR REPRESENTED BY ISABELLE BOCCON-GIBOD

Date of first appointment: 15 May 2014

Date of last renewal: 18 May 2018

Date appointment expires: AGM held to approve financial statements for 2021 financial year

Number of shares held at 31 December 2018: 4,759,008

Business address:
47 rue du Faubourg Saint-Honoré,
75401 Cedex 08 Paris

PROFESSIONAL EXPERIENCE

Fonds Stratégique de Participations (FSP) is a SICAV, or open-ended investment company, which is registered with the French financial markets authority (AMF) and which seeks to promote long-term equity investments by acquiring strategic stakes in French companies. FSP's Board comprises eight members, including seven insurance companies (all shareholders) and the Edmond de Rothschild group.

FSP is divided into five sub-funds, each of which holds an interest in the capital of one company.

FSP is an independent investment body with its own governance structure. Its portfolio is managed by a dedicated team within Edmond de Rothschild Asset Management, part of the Edmond de Rothschild group, which is responsible for the financial monitoring of the companies in which FSP has invested and relations with FSP's permanent representatives on those companies' Boards of Directors. FSP does not act in concert with other shareholders and votes independently at annual general meetings. FSP appointed Isabelle Boccon-Gibod as its permanent representative on the Company's Board of Directors.

OTHER OFFICES CURRENTLY HELD**

France

- Director, SEB S.A.*
- Director, Eutelsat Communications*
- Member of the Supervisory Board, Tikehau Capital SCA*
- Director, Elior Group*
- Director, Neonen

International

- None

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2018

- Director, Zodiac Aerospace*

Expired from 2014 to 2017

- None

Isabelle Boccon-Gibod

PERMANENT REPRESENTATIVE OF FSP
AND MEMBER OF THE AUDIT AND ACCOUNTS COMMITTEE

Date appointed: 15 May 2014

Nationality: French

Number of shares held at 31 December 2018: 250

Business address: Arkema,
420, rue d'Estienne d'Orves,
92700 Colombes

PROFESSIONAL EXPERIENCE

Born in 1968, Isabelle Boccon-Gibod is a graduate of the *École Centrale de Paris* in France and the University of Columbia in the United States. She is a member of the national investment strategy Board (*Conseil national d'orientation*) of BPI France, Vice-President of the MEDEF Economic Commission, Director of the Paprec group, Director of Sequana, Director of Legrand and permanent representative of Fonds Stratégique de Participations, a Director of Zodiac Aerospace.

She was Executive Vice-President of Arjowiggins and an Executive Director of Sequana and also chaired Copacel, the French Association of Paper Industries, until the end of 2013. Isabelle Boccon-Gibod is also a photographer and author.

OTHER OFFICES CURRENTLY HELD**

France

- Director, Sequana*
- Director, Legrand*
- Member of the national investment strategy Board (*Conseil national d'orientation*), BPI France
- Director, Paprec
- Director, Centre Technique du Papier
- Chairman, Demeter

International

- None

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2018

- Permanent representative of Fonds Stratégique de Participations, a Director of Zodiac Aerospace*
- Vice-President of the Economic Commission, MEDEF

Expired from 2014 to 2017

- Chairman, Copacel

* *Listed company.*

** *Outside the Arkema Group.*

3.2.2 Executive management

3.2.2.1 CHAIRMAN AND CHIEF EXECUTIVE OFFICER

In 2006, the Board of Directors decided not to separate the roles of Chairman of the Board and Chief Executive Officer in order to put in place a simple, reactive and responsible decision-making process. In 2016, when renewing the term of office as director of Thierry Le Hénaff, Chairman and Chief Executive Officer of the Company, the Board decided unanimously that the positions of Chairman and of Chief Executive Officer should continue to be combined, as recommended by the Nominating, Compensation and Corporate Governance Committee. Consequently, the Board re-appointed Thierry Le Hénaff as Chairman and Chief Executive Officer of the Company following the annual general meeting of 7 June 2016.

This decision to maintain a unified governance structure, in compliance with the AFEP-MEDEF Code, was based on a detailed analysis by the Board of Directors taking into account both the way Arkema's governance structures have operated since its stock market listing and the Group's specific needs. The Board of Directors considered that Arkema's governance structures operated very efficiently and in strict respect of the balance of powers between the Board and management thanks to the robust control mechanisms set up within the Group, such as:

- limitations of the powers of the Chairman and Chief Executive Officer, who is required to inform the Board of Directors of the most significant transactions or submit them to the Board of Directors for prior approval. These limitations are set out in detail in section 3.3.1 of this chapter;
- the appointment in March 2016 of a senior independent director whose primary role is to oversee the efficient running of the Company's governance structure and to assist the Chairman and Chief Executive Officer as needed, in particular in his relations with shareholders on governance issues. The senior independent director's role and responsibilities are described in detail in the Board of Directors' Internal Rules available on the Company's website, www.arkema.com. They are set out in section 3.3.3 of this chapter;
- a majority of independent directors on the Board of Directors and its committees;
- a Chairman and Chief Executive Officer who is not a member of any of the specialized committees of the Board of Directors; and
- close involvement of all members of the Board of Directors in the Group's strategy, notably during the annual strategy seminar.

It should also be noted that the Nominating, Compensation and Corporate Governance Committee regularly reviews the existing governance structure – in particular, each time the Chairman and Chief Executive Officer's term of office is renewed – and verifies that the chosen structure continues to be the most appropriate. Its conclusions are presented to the Board of Directors, which then decides whether or not to maintain the structure in place.

In the course of the annual assessment of the Board of Directors carried out by consulting firm Spencer Stuart in early 2019, the directors once again expressed their great satisfaction with the current organization of the governance structure and with the Board's open, adversarial and constructive discussions. The directors appreciate, in particular, their complete freedom of expression and the quality of the discussions, which they attribute to the Board's diversity and its members' complementary skill-sets. They also consider that Arkema's corporate governance model ranks as a best practice.

3.2.2.2 EXECUTIVE COMMITTEE

The Chairman and Chief Executive Officer has put in place an Executive Committee.

The Executive Committee is in charge of the Group's operational management supervision as well as the coordination and monitoring of the implementation of strategy within the Group. It is a decision-making body that focuses on strategic matters and performance monitoring, and reviews significant organizational matters and large projects. It also ensures the effective implementation of internal control. The Executive Committee meets twice a month.

COMPOSITION OF THE EXECUTIVE COMMITTEE AT 31 DECEMBER 2018

Name	Position	Area of responsibility	Year of appointment
Thierry Le Hénaff	Chairman and Chief Executive Officer		2006
Operational Executive Vice-Presidents			
Christophe André	Executive Vice-President, advanced materials	Technical Polymers and Performance Additives Business Lines and Commercial Excellence	2016
Vincent Legros	Executive Vice-President, Bostik	Bostik	2016
Marc Schuller	Executive Vice-President, Coating Solutions and Industrial Specialties	Coating Solutions, Industrial Specialties and raw materials and energy procurement	2006

Name	Position	Area of responsibility	Year of appointment
Functional Executive Vice-Presidents			
Luc Benoit-Cattin	Executive Vice-President, Industry	Industrial safety, environment and sustainable development, technique and construction, supply chain, quality and goods and services procurement, processes and operational excellence	2011
Bernard Boyer	Executive Vice-President, Strategy	Planning, economic studies, acquisitions/divestitures, internal audit and internal control, insurance and risk management, and legal affairs	2006
Michel Delaborde	Executive Vice-President, Human Resources and Communication	Human resources and communication	2006
Marie-José Donsion	Chief Financial Officer	Accounting, management control, treasury management, taxation, financing, investor relations and IT	2018

Marie-José Donsion was appointed Chief Financial Officer and a member of Arkema's Executive Committee on 1 June 2018 when she took over from Thierry Lemonnier upon the latter's retirement. The Executive Committee therefore comprises one woman, or 12.5% of the Committee's members.

Effective 1 July 2019, Thierry Parmentier will be appointed Executive Vice-President, Human Resources and Communication of the Group, replacing Michel Delaborde who will be retiring.

Biographies of the Executive Committee members can be found on the Company's website (www.arkema.com) in the Finance – Governance section.

In addition, the Chairman and Chief Executive Officer wanted the R&D department and the Digital Transformation department to report to him directly given their importance to the Group's strategy. For further details about these departments, see section 1.3 of this document.

3.2.2.3 THE GROUP MANAGEMENT COMMITTEE

Since 1 September 2016, the Chairman and Chief Executive Officer has put in place a Group Management Committee, whose duties entail in particular the quarterly review of the Group's performance (HSE, financial and operational) and follow-up on the Group's major projects and priorities. This committee also discusses the Group's medium and long-term orientations. It meets four times a year.

At 31 December 2018, the Group Management Committee was made up of nineteen members, including eight Executive Committee members, seven Vice-Presidents of Business Lines, two Vice-Presidents of corporate functions and two regional Vice-Presidents. The Executive Committee members comprise three women, or 16% of the Committee's members.

3.2.3 Additional information concerning members of the Board of Directors and executive management

3.2.3.1 ABSENCE OF FAMILY TIES

To the best of the Company's knowledge, and at the date of this document, there are no family ties between (i) the members of the Board of Directors, (ii) the members of the Executive Committee, and (iii) the members of the Board of Directors and those of the Executive Committee.

3.2.3.2 ABSENCE OF ANY CONVICTION FOR FRAUD, INVOLVEMENT IN A BUSINESS FAILURE, OR PUBLIC INCRIMINATION AND/OR SANCTION

To the best of the Company's knowledge, and at the date of this document, no member of the Board of Directors or the Executive Committee has been:

- convicted of fraud during the past five years;
- implicated in a bankruptcy, receivership or liquidation as a member of an administrative, management or supervisory body during the past five years; or
- charged with any offense or had any official public sanction imposed on them by statutory or regulatory authorities during the past five years.

To the best of the Company's knowledge, during the past five years, no executive officer has been prohibited by a court from serving as a member of the administrative, management or supervisory body of an issuer, or from participating in the management or governance of an issuer's business.

3.2.3.3 ABSENCE OF CONFLICTS OF INTEREST

The Company has put in place measures to prevent potential conflicts of interest between the directors and the Company.

In accordance with corporate governance best practice and the recommendations of the AFEP-MEDEF Code in particular, the Board of Directors' Internal Rules provide that:

- each director must undertake to maintain under all circumstances their independence of analysis, judgment, decision-making and action and, to this end, must not seek or accept any advantages likely to be considered as compromising their independence from the Company or any associated company, either directly or indirectly. Each director undertakes to notify the Board of Directors of any agreement between them and the Company, entered into directly, indirectly or via an intermediary, prior to entering into such agreement. Furthermore, each director must undertake not to assume any duties in companies or business activities that are in competition with the Company without previously notifying the Board of Directors and the Chairman of the Nominating, Compensation and Corporate Governance Committee; and
- in the event of a conflict of interest, the director in question must abstain from voting on any resolution submitted to the Board and from participating in the discussion preceding the vote. The Chairman may ask such director not to attend while the topic is addressed.

Directors must confirm the absence of any conflicts of interest (even potential) when they take up office, each year when so requested for the preparation of the reference document, and at any time, upon request by the Chairman and Chief Executive Officer.

To the best of the Company's knowledge, there are no potential cases of conflicts of interest between the duties of members of the Board of Directors or of executive management vis-à-vis the Company and their private interests. To the best of the Company's knowledge, no arrangements or agreements resulting in the selection of a member of the Board of Directors or of executive management have been made with the Company's main shareholders, customers or suppliers.

To the best of the Company's knowledge, there are no restrictions accepted by the members of the Board of Directors or executive management concerning the transfer of their holding in the Company's share capital, other than those set out in sections 3.4.2.1 and 3.4.3.1 of this chapter.

3.2.3.4 INFORMATION REGARDING SERVICE CONTRACTS

To the best of the Company's knowledge, there are no service contracts between the members of the Board of Directors or the Executive Committee and the Company or any of its subsidiaries providing for the granting of benefits under the terms of such a contract. The members of the Executive Committee, however, are all employees of the Company except for Thierry Le Hénaff.

3.3 OPERATING PROCEDURES OF ADMINISTRATIVE AND MANAGEMENT BODIES

The duties and operating rules of the Company's administrative and management bodies are defined by law, by the Company's Articles of Association and by the Internal Rules of the Board of Directors. The latter documents can be found on the Company's website (www.arkema.com) under Finance – Governance.

3.3.1 Management and limitation of powers of the Chairman and Chief Executive Officer

3.3.1.1 POWERS OF THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER

The Chairman and Chief Executive Officer is vested with the most extensive powers to act in the Company's name in all circumstances. He exercises these powers within the limits of the Company's corporate purpose and subject to those powers expressly vested by law in general shareholders' meetings and the Board of Directors. He represents the Company in its relations with third parties.

The Board of Directors may set limits on the powers of the Chairman and Chief Executive Officer. In 2006, the Board of Directors introduced a right of prior approval or post review by the Board of Directors. The Chairman and Chief Executive Officer must therefore inform the Board of the most significant transactions or submit them to the Board for prior approval, as follows:

Prior approval by the Board of Directors	Post review by the Board of Directors
• Overall capital expenditure budget • Any industrial investment in excess of €80 million • Any acquisition or divestment project with an enterprise value in excess of €130 million • Any annual capital expenditure budget overrun in excess of 10%	• Any industrial investment in excess of €30 million • Any acquisition or divestment project with an enterprise value in excess of €50 million

The general powers of the Chairman and Chief Executive Officer were confirmed by the Board of Directors when his term of office was renewed in 2016.

3.3.1.2 DEPOSITS, COMMITMENTS AND GUARANTEES

Every year, the Board of Directors authorizes the Chairman and Chief Executive Officer, or any person duly authorized to act on his behalf, to issue deposits, commitments and guarantees to third parties in the Company's name. At its meeting on 24 January 2018, the Board of Directors granted said authorization to issue new deposits, commitments and guarantees up to a limit of €90 million, and to continue the deposits, commitments and guarantees previously made.

The authorization was renewed on the same terms for 2019.

3.3.2 Duties and operating procedures of the Board of Directors

3.3.2.1 DUTIES

The Board of Directors is a collegiate body that takes decisions collectively. It is mandated by and accountable to all of the shareholders.

The Company's Board of Directors exercises the powers assigned by law in order to act in the Company's best interests in all circumstances. It decides the Company's overall business strategy and oversees its implementation. Subject to those powers expressly conferred upon it at shareholders' meetings and within the limits of the Company's corporate purpose, the Board of Directors considers any issue involving the proper operation of the Company and decides on any issue concerning the Company. Lastly, it strives to create value over the long term by also factoring social and environmental challenges into the Group's business plans.

To this end, it must in particular monitor and review the Group's strategic developments, appoint the executive officers responsible for managing the Company in line with the corporate strategy, monitor the implementation of this strategy, take decisions regarding major transactions, ensure the quality of information supplied to shareholders and the markets, particularly in the financial statements, and guarantee the quality of its operations. It analyses opportunities and risks – especially financial, legal, operational, social and environmental risks – on a regular basis in line with the Group's strategy and the related measures taken.

The Board of Directors can decide to set up one or more specialized committees. It defines the composition and remit of these committees, which operate under the responsibility of the Board of Directors. In accordance with the Internal Rules of the Board of Directors and each of its committees, some matters are therefore subject to prior review by the appropriate committee before being submitted to the Board of Directors for approval.

3.3.2.2 OPERATING PROCEDURES

The operating procedures of the Board of Directors are determined by current laws and regulations, the Company's Articles of Association and its Internal Rules as updated most recently on 26 February 2019 in compliance with the AFEP-MEDEF Code.

The Board of Directors meets at least four times a year and whenever the interests of the Company so require. Meetings are convened by its Chairman. The convening notice may be delivered by any means, even verbally, eight days before the date of the meeting and, in urgent cases, without notice. It specifies where the meeting will take place. Since 2017, the convening notice and meeting support documents are made available via a digital platform that enables the secure exchange of data. In principle, meetings take place at the Group's head office but may in certain cases be held by conference call in accordance with the law, the Company's Articles of Association and the Board of Directors' Internal Rules.

The Board of Directors' meetings are chaired by the Chairman of the Board or, in his absence, by the oldest director in attendance.

The Board of Directors may legitimately deliberate even in the absence of a notice of meeting if all members are present or represented. In accordance with its Internal Rules, in all cases permitted by law and if specified in the notice of meeting, directors attending the meeting by means of videoconferencing or any other telecommunication method that meets the requisite technical specifications set by current laws and regulations are deemed present for the purpose of quorum and majority requirements.

Decisions are taken by majority vote of the members present, deemed present or represented. In the case of a split vote, the Chairman has the casting vote.

In accordance with corporate governance best practice and the recommendations of the AFEP-MEDEF Code in particular, the Board of Directors' Internal Rules also set out the rights and obligations of the directors and notably impose that:

- before accepting their duties as director of the Company, the directors must ensure that they are familiar with the Company's Articles of Association, the Board of Directors' Internal Rules, and the legal and regulatory provisions governing the functions of a director of a French joint stock corporation (*société anonyme*), and in particular the rules relating to the definition of the powers of the Board of Directors, multiple directorships, the agreements falling within the scope of Article L. 225-38 of the French Commercial Code, the holding and use of insider information, the declarations of trading in the Company's shares and the black-out periods during which directors may not trade in those shares;
- the directors are elected by all the shareholders and must act in all circumstances in the Company's best interests;
- the directors must devote the necessary time and attention to their duties. Consequently, the directors may not hold more than four other directorships in listed companies, including foreign companies, outside the Group. Accordingly, the directors undertake to inform the Chairman of the Nominating, Compensation and Corporate Governance Committee of any new non-executive or executive directorship that they might accept in a company outside the Group or outside the group of which he or she is a member, including their participation in the committees of these companies' Boards; executive directors may not hold more than two other directorships in listed companies outside the Group and must seek the opinion of the Board of Directors prior to accepting any new directorship in a listed company;
- the directors must be committed and, where possible, take part in all the Company's Board of Directors' meetings and the meetings of the committees to which they have been appointed, as well as general shareholders' meetings;
- prior to each Board of Directors' meeting, except in the event of an emergency justified by exceptional circumstances, the agenda and information on items on the agenda that require special analysis and prior consideration are sent to each director with the notice of meeting or at least in sufficient time before the meeting, whenever this can be accomplished without any breach of confidentiality. The directors may also request from the Chairman and Chief Executive Officer any additional information they may consider necessary to properly fulfill their duties, particularly in the light of the meetings' agenda;
- if they deem it necessary, the directors may also request additional training on the Group's specific features, businesses, and sector of activity, at the time of their appointment or during their term of office. This training is organized by the Company, which pays the related costs;
- all documents provided for Board of Directors' meetings and all information collected during or outside Board of Directors' meetings are confidential, without exception, whether or not the information collected is presented as being confidential. In this regard, the directors must consider themselves bound by strict professional confidentiality beyond the simple duty of discretion provided for by the law. Furthermore, the directors undertake not to express their individual views outside the boardroom on matters discussed during Board of Directors' meetings, or on the opinions expressed by individual directors; and
- as required by law and regulations, the directors must refrain from trading in the Company's securities (including derivative financial instruments) insofar as, by virtue of their duties, they have access to insider information. They are therefore added, as soon as they take up their duties, to the list of people subject to the black-out periods implemented by the Company. Furthermore, the directors must disclose any transactions they have entered into in respect of the Company's securities.

The Internal Rules also provide that, when the positions of Chairman and Chief Executive Officer are held by the same person, the Board of Directors shall appoint one of the independent directors to serve as senior independent director, based on the recommendation of the Nominating, Compensation and Corporate Governance Committee. For further details, see section 3.3.3 of this chapter.

In accordance with the AFEP-MEDEF Code and with best governance practices, the Chairman and Chief Executive Officer does not take part in any discussions concerning his term of office and compensation. The other Board members therefore have the opportunity to conduct discussions in an executive session, without his presence, at least once a year. The Board's Internal Rules have also provided that following the annual assessment of the Board of Directors' operating procedures, the senior independent director may organize another meeting of non-executive directors, from which executive or employee directors are excluded.

3.3.2.3 ACTIVITIES OF THE BOARD OF DIRECTORS

The Board of Directors met six times in 2018. The attendance rate at these meetings was 97% (versus 90.5% in 2017 and 95% in 2016). On average, the meetings lasted approximately three and a half hours.

The following table summarizes the individual attendance rates of directors at the meetings of the Board of Directors and its committees in 2018.

	Board of Directors		Audit and Accounts Committee		Nominating, Compensation and Corporate Governance Committee	
Directors	**Attendance rate**	**Number of meetings**	**Attendance rate**	**Number of meetings**	**Attendance rate**	**Number of meetings**
Thierry Le Hénaff	100%	6/6	-	-	-	-
Yannick Assouad	100%	6/6	-	-	-	-
Jean-Marc Bertrand (2)	100%	3/3	-	-	-	-
Patrice Bréant (1)	67%	2/3	-	-	-	-
Marie-Ange Debon (2)	100%	3/3	100%	4/4	-	-
Marie-José Donsion (1)	100%	3/3	100%	2/2	-	-
François Enaud	100%	6/6	-	-	100%	3/3
Alexandre de Juniac (2)	100%	3/3	-	-	100%	1/1
Victoire de Margerie	100%	6/6	-	-	67%	2/3
Laurent Mignon	100%	6/6	-	-	-	-
Hélène Moreau-Leroy	100%	6/6	100%	6/6	-	-
Thierry Morin	84%	5/6	-	-	100%	3/3
Nathalie Muracciole	100%	6/6	-	-	-	-
Marc Pandraud	100%	6/6	-	-	-	-
Fonds Stratégique de Participations represented by **Isabelle Boccon-Gibod**	100%	6/6	100%	6/6	-	-
TOTAL	**97%**	**6**	**100%**	**6**	**92%**	**3**

(1) Term of office expired on 18 May 2018.
(2) Appointed on 18 May 2018.

The agenda of the Board of Directors' meetings included recurring annual topics as well as more specific topics.

Operations, strategy and risk management

Recurring annual topics

- review and approval of the strategy and main operational priorities presented during the annual seminar
- follow-up of the roll-out of targeted acquisitions and major capital expenditure programs
- review and, where necessary, update of the risk map
- presentation and approval of the insurance program
- changes in the competitive environment
- review of the Group's position in terms of cybersecurity
- progress report on the Group digital transformation program
- business presentation by the industrial division
- presentation and review of the business of each division

Specific topics in 2018

- review of strategy in Acrylics in China and of the authorization to buy back shares in Jurong Chemical, partner in the Sunke joint-venture
- review of acquisition policy in the adhesives business
- review of the consequences of the Crosby incident in Texas following Hurricane Harvey.

Accounting and financial situation	**Recurring annual topics** • approval of the annual budget • approval of the annual consolidated and Company financial statements, proposed allocation of profit and distribution of dividends • approval of the management report and, more generally, of the reference document • preparation of the annual general meeting including approval of the draft resolutions • approval of management forecast documents • approval of the half-yearly financial statements and review of quarterly financial information • review of reports on the work carried out by the Audit and Accounts Committee • approval of draft results press releases • review of the Company's needs in terms of financial resources and therefore of the Euro Medium Term Notes (EMTN) program and definition of the maximum issue amount • feedback from roadshows **Specific topics in 2018** • renewal of the Euro Medium Term Notes (EMTN) program for a maximum amount of €3 billion.
Corporate governance and compensation	**Recurring annual topics** • assessment of the Board of Directors' operating procedures • assessment of the independence of directors • review of directors' terms of office and proposal of renewals/appointments • review of reports on the work carried out by the Nominating, Compensation and Corporate Governance Committee • review of related-party agreements and agreements entered into and authorized during previous years which were implemented during the year • definition of the amount and the principles for allocating attendance fees • policy on the Chairman and Chief Executive Officer's compensation • compensation due or awarded to the Chairman and Chief Executive Officer for the prior year • compensation for Executive Committee members (fixed compensation, variable compensation for the prior year and criteria used to determine variable compensation) • definition of share-based compensation for Group employees (performance share plan, capital increase reserved for employees, etc.) • changes in the Executive Committee and its succession plan, including for the Chairman and Chief Executive Officer, as well as career management policy for executives • definition of the Chairman and Chief Executive Officer's powers to issue deposits, commitments and guarantees • activity report of the senior independent director • approval of the report on corporate governance **Specific topics in 2018** • creation of a whistleblowing facility and amendment of the Code of Conduct and Business Ethics in accordance with the provisions set out in the Sapin II Law and a general review of the different compliance initiatives and measures deployed within the Group • changes in the Executive Committee, particularly the replacement of the Chief Financial Officer and the Executive Vice-President, Human Resources and Communication • appointments of Marie-Ange Debon and Alexandre de Juniac as members of the Board of Directors and reappointment of *Fonds Stratégique de Participations* represented by Isabelle Boccon-Gibod • support for Jean-Marc Bertrand's appointment as director representing shareholder employees • decision to maintain François Enaud as senior independent director • acknowledgment of the fulfillment of the performance conditions applicable to the 2014 performance share plan • 2018 performance share plan.
Corporate social responsibility	**Recurring annual topics** • the Group's situation in terms of safety and environment • Group human resources policy, especially its diversity policy • Group CSR approach and roadmap **Specific topics in 2018** • set-up of the "*Plan de vigilance*" (duty of care plan).

At each meeting, the Chairman reviews the transactions concluded since the previous meeting and seeks the authorization of the Board of Directors for the main projects underway that are likely to be completed before the next meeting.

Once a year, the Board of Directors dedicates a day to reviewing Arkema's strategy in the presence of the Executive Committee members and the head of R&D. During this meeting, the directors are given detailed presentations on key components of the Group's strategy, including R&D, with a demonstration of the recent innovations in various areas, the acquisition strategy, safety and sustainable development, the digital strategy, the competitive landscape, and specific operational risks. This is also an opportunity for the Board to analyze the main challenges of the coming years and changes in the Group's profile. At the end of the seminar, the directors meet with around 20 of the Group's senior executives and high potentials.

The Board of Directors oversees the Company's quest for gender balance within the Executive Committee and the 10% of most senior positions. For further details on human resources diversity policy, see section 4.4.1.5 of this document.

Lastly, the Board of Directors, using the preparatory work of the Nominating, Compensation and Corporate Governance Committee, and in complete cooperation with the Chairman and Chief Executive Officer, examines succession planning for the Chairman and Chief Executive Officer and the members of the Executive Committee, and career management policy for Group executives. This work is used to prepare for reappointments and replacements in view of the different term of office renewal dates and to handle long-term succession planning scenarios or for dealing with crisis situations.

Since the beginning of 2019, the Board of Directors has met three times, with an attendance rate of 98%. In addition to recurring topics such as the approval of the 2019 annual budget, the approval of the annual consolidated and Company financial statements for 2018, the proposed allocation of profit and distribution of dividends and, more generally, the preparation of the annual general meeting including approval of the proposed resolutions, these meetings focused in particular on:

- changes to the composition of the Board of Directors with (i) the proposed appointment of Ian Hudson to replace François Enaud as independent director and who will join the Audit and Accounts Committee and (ii) the proposals to reappoint Victoire de Margerie, Hélène Moreau-Leroy and Laurent Mignon;
- the appointment of Hélène Moreau-Leroy as senior independent director to replace François Enaud from 21 May 2019, subject to her reappointment as a director by the annual general meeting on the same date;
- maintaining Thierry Morin as Chairman of the Nominating, Compensation and Corporate Governance Committee;
- a review of the Group's social and environmental challenges as part of CSR performance reporting requirements pursuant to Article L. 225-102-1 of the French Commercial Code and the report on the effective deployment of the *Plan de vigilance* (duty of care plan);
- a review of the Group's tax situation; and
- the assessment of the operating procedures of the Board of Directors and its committees conducted by an independent advisory firm.

One of these three meetings was held in Shanghai, China, at the headquarters of Arkema (China) Investment Co. Ltd. In addition to recurring topics, the Board focused on key strategic priorities and projects in advanced materials and Arkema's Chinese businesses. After this meeting, the Board members visited the Changshu industrial platform where they enjoyed a presentation of Arkema's key activities at this site.

3.3.2.4 ASSESSMENT OF THE OPERATING PROCEDURES OF THE BOARD OF DIRECTORS

In accordance with the AFEP-MEDEF Code and its Internal Rules, the Board of Directors conducts an annual assessment of its operating procedures by means of a formal questionnaire. Every three years in principle, an assessment is conducted by an external consultant. The form and terms of the Board's assessment are discussed by the Nominating, Compensation and Corporate Governance Committee every year.

The Chairman of the Nominating, Compensation and Corporate Governance Committee and the Secretary of the Board of Directors are involved in all areas of the assessment process (drafting/updating the questionnaire, setting the schedule, reviewing the answers to the questionnaire, preparing the feedback, attending preparatory and feedback meetings with the consulting firm).

At the beginning of 2019, the Board of Directors' 2018 operating procedures were assessed by consulting firm Spencer Stuart. In this context, individual interviews of each director were conducted based on a guide that was drawn up in advance and specifically tailored to Arkema and to the objectives set for the performance of this external assessment. The guide was approved by the Chairman of the Nominating, Compensation and Corporate Governance Committee and the Secretary of the Board of Directors. Prior to the interviews, each director was invited to complete an online questionnaire.

The findings from this assessment process were detailed in a report that was first presented to the Nominating, Compensation and Corporate Governance Committee on 19 February 2019 and then to the Board of Directors on 26 February 2019.

In general, this assessment shows that Arkema's governance is among the best in the industry in terms of governance practices. More than 75% of directors consider that the operating procedures of Arkema's Board of Directors continued to improve compared with the last external assessment carried out in 2016 and a large majority of directors who also sit on the boards of comparable companies consider the operating procedures of Arkema's Board to be the best, in particular due to the Chairman's attitude towards the directors and the directors' active and positive contribution.

This assessment highlighted the following strengths:

- the current governance structure with the combined role of Chairman and Chief Executive Officer, which is entirely suited to Arkema, in particular due to the attitude of transparency of the Chairman and CEO's towards the Board. Indeed, the Chairman and CEO listens to the Board's opinion and seeks discussion and interactions;
- the diverse expertise of the directors;
- the directors' genuine commitment to and interest in Arkema and the successful integration of new directors;
- the freedom of expression, friendliness and trusting relationship among the Board members, which has not been affected by the replacement of directors;
- increased interaction with the entire Executive Committee team thanks to more regular meetings with its members and better knowledge of the latter;
- committees that play an excellent role in fulfilling their duties and provide the Board with real support;
- high quality Board documents; and

- a highly successful strategy seminar and trip to China in early 2019, which brought genuine value-added.

Following this assessment, the following subjects were identified by the Board to be further developed or consolidated:

- strengthening of skills in the areas of chemicals and international exposure and the continued presence of a Chief Executive Officer or former Chief Executive Officer from the industrial sector with a strong international dimension to the Board;
- the ongoing succession plan for the Chief Executive Officer and the Executive Committee in general; and
- institutionalizing the holding of a Board meeting at one of the Group's foreign sites.

3.3.3 Senior independent director

In accordance with best practice, the Board of Directors created the position of senior independent director in 2016. The primary role of the senior independent director is to oversee the efficient running of the Company's governance structures and the absence of conflicts of interest, and to ensure that shareholders' concerns on corporate governance matters are taken into consideration.

In accordance with the Board of Directors' Internal Rules, a senior independent director is appointed when the Chairman of the Board of Directors also serves as Chief Executive Officer. The senior independent director is selected from among the independent members of the Board, on the recommendation of the Nominating, Compensation and Corporate Governance Committee, and is appointed for his or her term as a director. He or she may be re-appointed.

The senior independent director's duties and responsibilities are as follows:

1. Concerning the operating procedures of the Board of Directors

- he or she may propose the inclusion of additional items on the agenda of Board meetings, if necessary;
- he or she asks the Chairman of the Board of Directors to call a Board meeting with a specific agenda in exceptional circumstances;
- he or she oversees the application of the Internal Rules for the preparation of Board meetings as well as during the meetings;
- following the annual assessment of the Board of Directors' operating procedures led by the Nominating, Compensation and Corporate Governance Committee, he or she may organize and chair a meeting of non-executive directors, without the presence of executive or employee directors, to discuss the operating procedures of the Company's governance structures; he or she reports the meeting's conclusions to the Chairman and Chief Executive Officer; and
- he or she reports on his or her activities to the Board of Directors at least once a year and at any time if he or she considers it necessary.

2. Concerning conflicts of interest

He or she advises his or her fellow directors on the related risks. He or she reviews with the Chairman of the Board of Directors and the Nominating, Compensation and Corporate Governance Committee any potential conflicts of interest that he or she has identified or been informed of, and informs the Board of Directors of his or her thoughts on the matter as well as those of the Chairman.

3. Concerning shareholder relations

He or she is informed of comments and suggestions received from significant shareholders not represented on the Board of Directors about corporate governance matters. He or she oversees that they receive answers to their questions and, after consulting the Chairman and Chief Executive Officer, makes himself or herself available to communicate with them if necessary. The Board of Directors is informed about these contacts.

ACTIVITY REPORT OF THE SENIOR INDEPENDENT DIRECTOR FOR 2018

François Enaud, senior independent director since 2 March 2016, reported to the Board of Directors on his role at the meeting of 26 February 2019 and stated that he had met with investors upon their request but had not encountered any particular difficulties. Since the assessment of the operating procedures of the Board of Directors and of the committees had not identified any problems, no executive session has been organized following this assessment, by agreement with all of the directors.

As mentioned in section 3.2.1.1 of this chapter, since 10 May 2018, François Enaud has been a director of Arkema for over twelve years and therefore is no longer considered as independent. However, in light of his recent appointment as senior independent director and to ensure continuity in the exercise of these duties, particularly *vis-à-vis* shareholders, the Board of Directors decided at its meeting of 21 February 2018 – on an exceptional basis and by derogation to its Internal Rules – to allow François Enaud to continue to serve as senior independent director until his term of office expires at the close of the annual general meeting to be held on 21 May 2019 to approve the financial statements for the year ending 31 December 2018. At its meeting on 3 April 2019, the Board of Directors decided to appoint Hélène Moreau-Leroy as senior independent director to replace François Enaud from 21 May 2019, subject to her reappointment by the annual general meeting.

3.3.4 Committees of the Board of Directors

The Board of Directors has two permanent specialized committees: the Audit and Accounts Committee and the Nominating, Compensation and Corporate Governance Committee. The role of the committees is to examine and prepare certain matters to be discussed by the Board of Directors. Accordingly, the committees put forward their opinions, proposals and recommendations to the Board.

Each committee's role, organization and operating procedures are set out in their respective Internal Rules, as defined and approved by the Board of Directors. The Internal Rules of each committee state that:

- the term of office of committee members corresponds to their term of office as directors, although the Board of Directors may modify the composition of the committees at any time;
- at least two members must be present for a meeting of the committees to be valid;
- no committee member may be represented by another person; and
- each committee reports on its work to the Board of Directors and presents an annual assessment of its operating procedures drawn up on the basis of the requirements of its Internal Rules, as well as any suggestions for improving its operating procedures.

Committee members may only receive attendance fees from the Company in respect of their term of office as directors and members of a committee.

3.3.4.1 THE AUDIT AND ACCOUNTS COMMITTEE

Composition and operating procedures

At 31 December 2018, the Audit and Accounts Committee was made up of three directors: Marie-Ange Debon (Chairman), Isabelle Boccon-Gibod (permanent representative of *Fonds Stratégique de Participations* (FSP) and Hélène Moreau-Leroy.

All members of this committee were qualified as independent by the Board of Directors except for Isabelle Boccon-Gibod, permanent representative of FSP.

In accordance with the AFEP-MEDEF Code, none of the members of the Audit and Accounts Committee holds an executive position within the Company. All of the members of the Audit and Accounts Committee have financial or accounting expertise and have also benefited from a presentation focusing on the Group's accounting, financial and operational specifics. For further details, see biographies of the committee members in sections 3.2.1.2 and 3.2.1.3 of this chapter.

The appointment of Marie-Ange Debon as Chairman of the Audit and Accounts Committee on 18 May 2018, to replace Marie-José Donsion, was subject to particular scrutiny by the Board of Directors. In compliance with Article L. 823-19 of the French Commercial Code, Marie-Ange Debon has specific financial and accounting expertise.

Subject to his appointment as independent director by the shareholders' general meeting to be held on 21 May 2019, Ian Hudson will also become a member of the Audit and Accounts Committee. For further details, see section 7.3 of this document.

The Audit and Accounts Committee generally meets six times a year, in particular to review the consolidated financial statements. Two of these meetings are primarily devoted to discussing internal control matters. The committee meets at the request of its Chairman, two of its members, or the Chairman of the Board of Directors. The annual schedule of Audit and Accounts Committee meetings is set by its Chairman during the prior year.

The Chief Financial Officer and the head of the Accounting and Controlling department attend all meetings. The statutory auditors are invited to every Audit and Accounts Committee meeting and give their conclusions after each meeting in the absence of the Company's representatives. The committee also meets privately with the Internal Audit and Internal Control Vice-President after the meetings, which he or she attends.

The Chairman and Chief Executive Officer does not take part in the meetings of the Audit and Accounts Committee.

Unless there is a reasoned decision to the contrary by the Board of Directors, no Audit and Accounts Committee member may be a member of the Audit and Accounts Committees of more than two other listed companies in France or abroad. The Board also ensures that it does not appoint to this committee a director from a company that has appointed one of the Company's directors to its own Audit and Accounts Committee.

Duties and activity of the Audit and Accounts Committee

In order to enable the Company's Board of Directors to ensure the quality of internal control and the reliability of information provided to shareholders and to the financial markets, the Audit and Accounts Committee exercises the prerogatives of a specialized committee as defined under Article L. 823-19 of the French Commercial Code. The Audit and Accounts Committee met six times in 2018, with an attendance rate of 100%.

As part of the duties set out in its Internal Rules, which were updated in 2018 to include in particular compliance topics, the Audit and Accounts Committee is more specifically in charge of the following:

Duties	Activity of the Audit and Accounts Committee
Monitoring the financial information preparation process	**Recurring topics** • review of the annual consolidated financial statements, the half-yearly and quarterly financial information and the annual Company financial statements and forecasts prior to their consideration by the Board of Directors • assessment of the suitability and consistency of accounting principles and policies • review of the options and assumptions used in the preparation of the financial statements • review of provisions • review of draft results press releases, particularly the accounting content • review of the Company's management forecast documents • review of the impact of major transactions planned by the Group • review of liabilities related to pensions and similar benefits, off-balance sheet commitments (particularly the most significant new contracts) and derivative instruments • preparation and submission of reports as set out in the Internal Rules of the Board of Directors, including the draft management report and draft reference document • review of Arkema's corporate social responsibility policy and changes to the policy as part of certification by the independent third party • review of the Group's cash and debt positions • review of the Group's tax situation and tax strategy **Specific topics in 2018** • review of the questions submitted by the AMF in relation to its review of the 2017 reference document and the answers provided by the Group • allocation of the purchase price paid for XL Brands and follow-up of its consolidation into the Group • review of the impact of the decision to buy the shares held by Jurong Chemical, partner in the Sunke joint-venture • accounting treatment of the share capital increase reserved for employees • application of new IFRSs, especially IFRS 16 and IFRS 9.
Overseeing the efficiency of internal control and risk management systems	**Recurring topics** • review of the Group's risks and of the risk map • review of internal control procedures • review of internal auditor work programs and their conclusions • assessment of the organization of delegations of authority • regular updates on developments of significant claims and disputes • preparation and submission of the section of the management report on internal control and risk management • review of the Group's compliance situation (particularly in terms of anti-trust, embargoes, anti-corruption and duty of care) • review of main litigation **Specific topics in 2018** • review of the risk mapping process and the risk factors section of the reference document as part of the application of the new regulation (EU) No. 2017/1129 of 14 June 2017 revising the Prospectus directive from 21 July 2019 • updating of the Board's Internal Rules to take account of compliance issues in the Sapin II Law.
Monitoring relations with statutory auditors and their independence	**Recurring topics** • oversight of the audit of the annual consolidated and Company financial statements by the statutory auditors • review of external auditor work programs and their conclusions • submission of recommendations on the appointment of the statutory auditors and their fees, in compliance with independence requirements • review of compliance with all applicable laws and regulations when statutory auditors are commissioned to perform work other than auditing the financial statements • review of statutory auditors' fees and declaration of independence and approval of permitted non-audit services **Specific topics in 2018** • oversight of the statutory auditors' mission and proposal to reappoint KPMG as auditors when their term expires • analysis and proposal to reappoint KPMG to verify CSR indicators for a two-year period.

Since the beginning of 2019, the Audit and Accounts Committee has met once with an attendance rate of 100%. In addition to recurring topics such as the review of the annual consolidated and Company financial statements for 2018, the meeting focused, among others, on the review of the statutory auditors' additional report to the Audit and Accounts Committee for the year ended 31 December 2018, the CSR performance report and the report on the effective deployment of the *Plan de vigilance* (duty of care plan).

In accordance with the AFEP-MEDEF Code and its Internal Rules, the Audit and Accounts Committee conducts an annual self-assessment of its work except when conducted by an external consultant. The assessment for 2018, which was carried out by consulting firm Spencer Stuart, shows that the committee members were very satisfied with meeting preparation and proceedings. For further details concerning the assessment of the operating procedures of the Board of Directors and its committees, see section 3.3.2.4 of this chapter.

3.3.4.2 THE NOMINATING, COMPENSATION AND CORPORATE GOVERNANCE COMMITTEE

Composition and operating procedures

As at 31 December 2018, the Nominating, Compensation and Corporate Governance Committee is made up of four directors: Thierry Morin (Chairman), François Enaud, Alexandre de Juniac, and Victoire de Margerie. In accordance with the AFEP-MEDEF Code, none of its members holds an executive position in the Company.

As mentioned in section 3.2.1.1 of this chapter, Thierry Morin and François Enaud have been directors of Arkema for over twelve years and therefore are no longer considered independent. With Alexandre de Juniac's appointment as a member of the Nominating, Compensation and Corporate Governance Committee at the annual general meeting of 18 May 2018, half of the committee's members qualify as independent members at 31 December 2018. At the close of the annual general meeting of 21 May 2019, the term of office of François Enaud having expired, the Committee will be composed of three members, two of whom will be independent, *i.e.*, a 67% majority of independent members, in compliance with the AFEP-MEDEF code.

The Board of Directors decided on 3 April 2019 to allow Thierry Morin to continue to serve as Chairman of the Committee. Thierry Morin who has served as director since the Company was created in 2006, has gained in-depth knowledge of the complex chemicals sector and the key factors for success and has been supporting Arkema to become a major player in advanced materials and adhesives with a balanced geographical footprint. He was instrumental in the deployment of an ambitious industrial development, acquisition and innovation strategy while striving to develop corporate governance in line with best practice. Over the past few years, the Board which has put a significant effort into renewing its membership in a context of numerous new legal and regulatory requirements, also wished to ensure continuity in the chairmanship of the Committee.

The Nominating, Compensation and Corporate Governance Committee generally meets three times a year. It meets at the request of its Chairman, two of its members, or the Chairman of the Board of Directors. The annual schedule of these meetings is set by the committee Chairman during the prior year.

The Chairman and Chief Executive Officer attends the committee's meetings and is closely involved in its discussions on nominations, governance issues and the compensation policy for Executive Committee members. However, he does not take part in the committee's discussions relating to him.

Duties and activity of the Nominating, Compensation and Corporate Governance Committee

The Nominating, Compensation and Corporate Governance Committee met three times in 2018, with an attendance rate of 92%.

As part of its duties, the Nominating, Compensation and Corporate Governance Committee is more specifically in charge of the following.

Duties	Activity of the Nominating, Compensation and Corporate Governance Committee
Nominations	**Recurring topics** • submission to the Board of Directors of recommendations on the composition of the Board of Directors and its committees • annual review of the appointment process and succession plan for Executive Committee members and more particularly the Chairman and Chief Executive Officer and the progress of the Group's managers and submission of recommendations in this regard; preparation of the succession planning for the Chairman and Chief Executive Officer, notably in crisis situations • annual review and submission to the Board of Directors of the list of directors who can be considered independent **Specific topics in 2018** • as part of a review of succession planning, review of Marie-José Donsion's appointment as Chief Financial Officer to replace Thierry Lemonnier and Thierry Parmentier's appointment as Executive Vice-President, Human Resources and Communication to replace Michel Delaborde • proposal to appoint Marie-Ange Debon as director and Chairman of the Audit and Accounts Committee to replace Marie-José Donsion • proposal to appoint Alexandre de Juniac as director and member of the Nominating, Compensation and Corporate Governance Committee
Compensation	**Recurring topics** • review of the compensation of the Company's Executive Committee members, including any executive directors, as well as their pension schemes, death/disability insurance and benefits in kind • recommendations and proposals to the Board of Directors on the Group's policies on compensation, pension schemes and death/disability insurance, benefits in kind, and allocations of performance shares • definition of the criteria, characteristics and beneficiaries of performance share plans, and acknowledgment of the fulfillment of criteria • review of the principles for allocating attendance fees among members of the Board of Directors and the rules governing their expense reimbursements • preparation and submission to the Board of Directors of the reports provided for in the Internal Rules and, more generally, any documents required under the applicable regulations.

Duties	Activity of the Nominating, Compensation and Corporate Governance Committee
Corporate governance	**Recurring topics** • review and analysis of the main changes to corporate governance principles and review of best practices • preparation of the annual assessment of the Board of Directors' work • review of any conflicts of interest • review of any corporate governance or ethical issues referred by the Board of Directors or its Chairman for review • review of the Code of Conduct and Business Ethics and proposal of modifications when necessary • review of the draft Board of Directors' report on corporate governance • review of feedback from governance roadshows • analysis of the annual reports of the AMF and the *Haut Comité de Gouvernement d'Entreprise* and of any new laws and regulations relating to corporate governance • updating of the Board's Internal Rules to reflect changes in the AFEP-MEDEF Code.

Since the beginning of 2019, the Nominating, Compensation and Corporate Governance Committee has met twice, with an attendance rate of 100%.

In addition to recurring topics such as the compensation of the Chairman and Chief Executive Officer and the Executive Committee members, meetings also focused on:

- updating the Board's Internal Rules to reflect changes in the AFEP-MEDEF Code ;
- the proposals to (i) appoint Ian Hudson, as new independant director, and subject to his appointment by the annual general meeting, as member of the Audit and Accounts Commitee, (ii) reappoint Victoire de Margerie, Hélène Moreau-Leroy and Laurent Mignon and (iii) appoint Hélène Moreau-Leroy, as senior independent director to replace François Enaud as from 21 May 2019; and
- the performance share grant policy and the proposal to renew the Board of Director's authorization to grant performance shares to be submitted to the annual general meeting of 21 May 2019.

In accordance with the AFEP-MEDEF Code and its Internal Rules, the Nominating, Compensation and Corporate Governance Committee conducts an annual self-assessment of its work or commissions an external consultant to perform this assessment. The assessment for 2018, which was carried out by consulting firm Spencer Stuart, shows that the committee members were very satisfied with meeting preparation and proceedings. For further details concerning the assessment of the operating procedures of the Board of Directors and its committees, see section 3.3.2.4 of this chapter.

3.4 COMPENSATION AND BENEFITS AWARDED TO EXECUTIVES AND DIRECTORS

The principles and rules for determining the compensation and benefits awarded to executives and directors of the Company are set out by the Company's Board of Directors based on recommendations by the Nominating, Compensation and Corporate Governance Committee.

The following information is disclosed in application of Articles L. 225-37-2 and L. 225-37-3 of the French Commercial Code, the AFEP-MEDEF Code, the recommendations of the *Haut Comité de Gouvernement d'Entreprise* in its activity report of October 2018, and AMF recommendation no. 2012-02 on corporate governance and executive compensation in listed companies referring to the AFEP-MEDEF Code - Consolidated presentation of the recommendations contained in the AMF annual reports, including the 2018 report, as published in November 2018.

3.4.1 Compensation of non-executive directors

The annual general meeting of 18 May 2018 set the maximum annual amount of attendance fees that the Board of Directors may allocate between its members and those of the specialized committees at €650,000.

The attendance fees payable to directors were determined by the Board of Directors at its meeting on 24 January 2018 as follows:

- an annual fixed amount of €25,000 per director paid on a pro rata basis in the event of a change during the year; and
- a predominant variable amount based on directors' attendance, as follows:
  - €3,000 per director present at a Board of Directors' meeting, except for exceptional meetings held by conference call and of a shorter duration for which the variable amount is set at €1,500 per director present, and
  - €2,000 per member present at a meeting of one of the specialized committees, except for the Chairman of each committee who receives €4,000. When exceptional meetings are held by conference call and are of a shorter duration, the variable portion is set at €1,000 per member in attendance and €2,000 for the Chairman.

The senior independent director receives an additional annual amount of attendance fees of €10,000.

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Attendance fees awarded to directors for 2018 therefore amounted to €500,000 (compared to €457,700 for 2017), allocated as follows:

TABLE OF ATTENDANCE FEES AND OTHER COMPENSATION RECEIVED BY NON-EXECUTIVE DIRECTORS (TABLE 3 OF AMFRECOMMENDATIONS)

(In euros)	Amounts paid for 2018	Amounts paid for 2017
Yannick Assouad, director Attendance fees	43,000	25,400 [1]
Jean-Marc Bertrand, director representing shareholder employees Attendance fees	None [2]	None [2]
Isabelle Boccon-Gibod, permanent representative of the FSP, director Attendance fees	55,000	53,000
Patrice Bréant, director representing shareholder employees Attendance fees	None [3]	None [3]
Marie-Ange Debon, director Attendance fees	43,750 [4]	None [4]
Marie-José Donsion, director Attendance fees	27,500 [5]	61,000
François Enaud, director Attendance fees	59,000	55,000
Alexandre de Juniac, director Attendance fees	29,750 [4]	None [4]
Victoire de Margerie, director Attendance fees	47,000	39,000
Laurent Mignon, director Attendance fees	43,000	33,500
Hélène Moreau-Leroy, director Attendance fees	57,000	51,000
Thierry Morin, director Attendance fees	52,000	52,000
Nathalie Muracciole, director representing employees Attendance fees	None [6]	None [6]

(In euros)	Amounts paid for 2018	Amounts paid for 2017
Marc Pandraud, director Attendance fees	43,000 [7]	41,000 [7]
TOTAL	**500,000**	**457,700** [8]

(1) Yannick Assouad has been a Director of the Company since 23 May 2017.
(2) Jean-Marc Bertrand is on the payroll of Arkema France and does not receive any attendance fees.
(3) Patrice Bréant is on the payroll of Arkema France and does not receive any attendance fees. His term of office as director expired at the annual general meeting held on 18 May 2018.
(4) Marie-Ange Debon and M. Alexandre de Juniac have been directors of the Company since 18 May 2018.
(5) Marie-José Donsion's term of office as director expired at the annual general meeting held on 18 May 2018.
(6) Nathalie Muracciole is on the payroll of Arkema France, and does not receive any attendance fees.
(7) Marc Pandraud declines all amounts due to him in return for his work as a Director of Arkema and requests that the Company donate his attendance fees to charity.
(8) This amount includes attendance fees paid to directors, whose terms of office expired in 2017.

With the exception of Patrice Bréant and Jean-Marc Bertrand, directors representing shareholder employees, and Nathalie Muracciole, director representing employees, who are each paid a salary by Arkema France, the non-executive directors received no other compensation or benefits in 2018 from the Company. Furthermore, no compensation other than that mentioned above and paid by the Company was paid to non-executive directors by other Group companies during the year.

3.4.2 Compensation of executive officers

At the date of this document, the Chairman and Chief Executive Officer is the Company's sole executive director.

3.4.2.1 COMPENSATION PRINCIPLES

The policy and principles governing the compensation of the Chairman and Chief Executive Officer are globally defined by the Board of Directors at each renewal of his term of office and for the duration of his term of office, on the recommendation by the Nominating, Compensation and Corporate Governance Committee. The Board of Directors conducts an overall assessment of the Chairman and Chief Executive Officer's compensation package as well as a detailed review of its components, to ensure that the compensation package remains simple, easy to understand, balanced and consistent. In particular, it ensures that the compensation policy is aligned with the Group's medium and long-term strategic priorities and is linked both to the Group's financial performance and to the Chairman and Chief Executive Officer's individual performance and responsibilities.

The Chairman and Chief Executive Officer does not take part in the discussions of the Nominating, Compensation and Corporate Governance Committee or those of the Board of Directors concerning his compensation.

The compensation policy for the Chairman and Chief Executive Officer aims to provide incentives and to secure loyalty, in accordance with market practice for equivalent positions in similar French and international chemical companies and in French companies with similar market capitalizations, and to align the Company's compensation structure with those of such companies. It is also consistent with the policy applicable to all executives of the Group.

On the basis of the above, in accordance with the decision of the Board of Directors of 2 March 2016, the structure of the Chairman and Chief Executive Officer's compensation, for the duration of his term of office as renewed on 7 June 2016, comprises (i) annual fixed compensation, (ii) annual variable compensation linked to the achievement of specific objectives reflecting the Group's performance for the year, and (iii) long-term compensation in the form of an annual award of performance shares, entirely subject to performance criteria. A component enabling the Chairman and Chief Executive Officer to constitute a retirement fund completes this package since the termination of the supplementary defined benefit pension scheme from which he benefited up until 7 June 2016. These components are divided in a balanced manner between short-term and long-term components, in line with the compensation of the Group's other executives and employees. They are mostly linked to the achievement of specific, quantified targets that reflect the Group's performance and are therefore supportive of the Company's development and value creation over the long-term, thus ensuring that the interests of the executive officer are aligned with those of the shareholders and all stakeholders. In addition, the Chairman and Chief Executive Officer benefits from a severance package in the event of forced departure.

The policy and principles set out in this section have been defined for the position of Chairman and Chief Executive Officer, as exercised at the date of this document and based on the current business scope of the Group. Were the Chairman and Chief

Executive Officer to be replaced during the year, for any reason whatsoever, the components and general principles of this policy should continue to be applicable. They may, however, be adjusted, if necessary, to reflect the duties and responsibilities of the new executive officer as well as the circumstances in which he took up office.

In compliance with the provisions of Articles L. 225-37-2 and R. 225-29-1 of the French Commercial Code, the policy and principles of the Chairman and Chief Executive Officer's compensation, unchanged since 2016, were approved by the Company's shareholders at the annual general meeting of 18 May 2018 and will be submitted to the shareholders' vote again at the annual general meeting to be held on 21 May 2019 (9th resolution). With the exception of outperformance, which would make it possible for the overall vesting rate of the performance shares to reach 120% of the original allocation, provided that the shareholders approve the 13th resolution at said annual general meeting, they are unchanged for 2019. For further details on the corresponding resolution, see section 7.2.2 of this document.

Annual fixed compensation

In accordance with the AFEP-MEDEF Code, the annual fixed compensation is reviewed each time the Chairman and Chief Executive Officer's term of office is renewed, *i.e.*, once every four years. It is determined by taking into account the duties and responsibilities of the Chairman and Chief Executive Officer and changes in the Group's size and profile. In addition, it is benchmarked with the compensation level of chief executive officers of comparable industrial companies. This compensation was last modified when the Chairman and Chief Executive Officer's term of office as director was renewed by the annual general meeting of 7 June 2016.

Annual variable compensation

Annual variable compensation is determined taking into account the achievement of specific, precise and demanding quantifiable and qualitative targets aligned with the Group's strategy and priorities. These targets are set on an annual basis by the Board of Directors on recommendation by the Nominating, Compensation and Corporate Governance Committee.

The annual variable compensation may represent up to 150% of the annual fixed compensation.

The criteria adopted are as follows:

- three quantifiable criteria representing a maximum of 110% of annual fixed compensation (and 73.5% of the criteria used to determine the variable compensation):
  - EBITDA, for a maximum of 55% of annual fixed compensation, which aligns the compensation of the Chairman and Chief Executive Officer with the annual financial performance of the Group and in particular rewards the success of the actions undertaken, the ability to adapt to changing market conditions and, more generally, the good management of the Group by the Chairman and Chief Executive Officer,
  - recurring cash flow, for a maximum of 27.5% of annual fixed compensation, which rewards the Group's ability to generate the cash necessary to finance its strategic ambitions and in particular its capital expenditure plans, acquisition program and dividend policy while maintaining a solid balance sheet, and
  - contribution of new developments, for a maximum of 27.5% of annual fixed compensation, which promotes innovation, the development of new customers and the launch of new applications as well as the completion of major investment projects in line with the Group's targeted growth strategy.

  It should be noted that although the targets to be met are set out in detail and quantified on an annual basis, the amounts involved are not disclosed for confidentiality purposes, in particular with regard to competitors. However, the Group does disclose every year the achievement rates for each criterion; and
- qualitative criteria representing a maximum of 40% of annual fixed compensation (and 26.5% of the criteria used to determine the variable compensation). These criteria are defined precisely each year and are mainly linked to the implementation of the Group's long-term strategy by the Chairman and Chief Executive Officer, including the Group's CSR focuses and day-to-day management. Around one third of these criteria are based on quantifiable components.

In accordance with the provisions of Article L. 225-37-2 of the French Commercial Code, the payment of this annual variable compensation is subject to the approval by the annual general meeting of the Chairman and Chief Executive Officer's compensation components in accordance with the conditions provided for under Article L. 225-100 of said code.

Long-term compensation: performance shares

Like a number of Group employees, the Chairman and Chief Executive Officer receives an annual allocation of performance shares that directly links a significant portion of his compensation to the Company's long-term performance.

The number of shares allocated each year is reviewed each time the Chairman and Chief Executive Officer's term of office is renewed, *i.e.*, once every four years, as part of the overall review of his compensation structure. The allocation comprises a fixed number of shares set for the duration of his term of office, taking into account, as for the annual fixed compensation, the grantee's duties and responsibilities and changes in the Group's size and profile. It was also assessed, on renewal of the Chairman and Chief Executive Officer's term of office and based on its fair value, in view of the percentage of the total compensation of the Chairman and Chief Executive Officer it accounts for, so that it represents a significant part of this latter, *i.e.*, around 40%.

In accordance with the law, the AFEP-MEDEF Code and market recommendations:

- performance shares awarded to the Chairman and Chief Executive Officer only vest subject to a condition of presence and to performance conditions assessed over a period of three years, which is followed by a two-year holding period, *i.e.*, a total vesting-holding period of five years;
- since 2016, the shares awarded to the Chairman and Chief Executive Officer in respect of performance share plans may not exceed 10% of all shares awarded in any one year;

- the Chairman and Chief Executive Officer is required to retain at least 30% of his vested shares for as long as he remains in office, as well as a number of shares obtained upon exercise of stock options corresponding to at least 40% of the net capital gain on acquisition. These obligations are suspended once the total value of the Arkema shares held, whatever their origin, is equivalent to 200% of his annual gross fixed compensation. However, when the total value of the shares held by the Chairman and Chief Executive Officer, whatever their origin, represents the equivalent of two years of his gross annual fixed compensation, he is required to hold:
  - at least 10% of the shares that vest after this threshold is reached, and
  - a number of shares corresponding to at least 10% of the net capital gain on acquisition from the exercise of stock options and the sale of the resulting shares;

  As from the 2019 performance share plan and subject to the approval of the authorization to be granted to the Board of Directors to allocate performance shares (13th resolution) by the annual general meeting to be held on 21 May 2019, the Chairman and Chief Executive Officer will be required to retain a number of shares of Arkema, whatever their origin, representing a global amount corresponding to 200% of his annual fixed compensation and an additional 10% of the shares fully vested or resulting from the exercise of stock options for any plan;
- the annual performance share plans provide that, as is the case for any other grantee within the Group, in the event of departure of the Chairman and Chief Executive Officer, except in the case of serious or gross misconduct, the Board of Directors may decide, in line with current good governance practice, to maintain the benefit of the shares awarded at the date of termination of his functions that are not fully vested at that date, the final vesting rate still remaining subject to the achievement of the performance criteria provided for in the plans concerned.

The performance criteria for the vesting of the performance shares to the Chairman and Chief Executive Officer are aligned with the Group's long-term objectives. Subject to the approval of the authorization to be granted to the Board of Directors to allocate performance shares (13th resolution) by the annual general meeting to be held on 21 May 2019, they should continue to relate to the following criteria with the changes mentioned in section 3.5 of this chapter.

- REBIT margin, which reflects the Group's transformation and, in particular, its ambition to strongly develop the share of adhesives in its business mix, and helps monitor the progress made by the Group in reducing its capital intensity and enhancing its resilience;
- EBITDA to cash conversion rate;
- comparative Total Shareholder Return (TSR) which helps benchmark the Arkema share performance against a peer group by factoring in both changes in share price and dividends. This criterion helps align even more closely the interests of beneficiaries with those of shareholders. The composition of the peer group is validated each year by the Board of Directors and may evolve to take account of changes in the competitive landscape; and
- return on average capital employed, which helps assess the profitability of investments made and therefore the Group's discipline in selecting its investments and using its resources and its ability to create value over the long term.

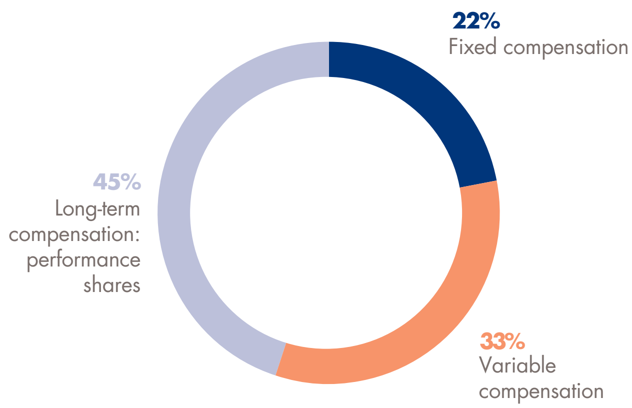
Subject to the approval of the 13th resolution mentioned above, and taking into account, as the case may be, the outperformance of the Group, all criteria included, the overall vesting rate may reach 120% of the initial grant in order to reward outperformance more effectively. For further details on the proposal to renew the authorization mentioned above, see sections 3.5, 7.2.2 and 7.2.3 of this document.

The targets set for these criteria are fully consistent with the medium- and long-term targets announced to the financial market and are similar to the internal targets.

The details of these criteria as defined for the 2018 performance share plan are presented by way of example in section 3.5.1 of this chapter.

In accordance with the recommendations of the AFEP-MEDEF Code, each year the Chairman and Chief Executive Officer formally undertakes not to use any financial instruments to hedge the risk of losses on the performance shares that he has been granted by the Company during his term of office as Chairman and Chief Executive Officer and as long as he remains in office.

By way of illustration, subject to the approval of the Chairman and Chief Executive Officer's compensation by the Company's shareholders in accordance with the conditions provided for under Article L. 225-100 of the French Commercial Code, thereby enabling payment of his annual variable compensation, and based on the valuation of the performance shares awarded in November 2018, the breakdown of the three components of the Chairman and Chief Executive Officer's compensation for 2018 was as follows:



Pension benefits

Since the Chairman and Chief Executive Officer's term of office was renewed in June 2016, when the supplementary defined benefit pension scheme governed by Article L. 137-11 of the French Social Security Code (*Code de la sécurité sociale*) from which he benefited since 2006 was terminated, the Chairman and Chief Executive Officer receives an additional annual payment corresponding to 20% of his total fixed and variable compensation for the year concerned, to enable him to build up his supplementary retirement benefits year after year.

Thierry Le Hénaff has committed to invest this amount, net of any contributions and tax, in investment vehicles dedicated to the financing of his supplementary retirement benefits.

Severance pay

The Chairman and Chief Executive Officer is entitled to compensation for termination of office in the event of forced departure, regardless of the form of the departure, including dismissal before the end of the term of office or non-renewal of such term of office on expiry, linked to a change in control or strategy, subject to the conditions approved by the annual general meeting of 7 June 2016. No compensation for termination of office will be paid in the event of serious or gross misconduct. The compensation amount would be calculated by reference to the achievement of five quantitative criteria (total recordable injury rate, annual variable compensation, comparative EBITDA margin, working capital and return on capital employed) and cannot exceed twice his total annual gross fixed and variable compensation. The calculation base would correspond to the fixed annual compensation for the year in which the forced departure occurs and the average of the last two years of variable compensation paid prior to the departure.

The maximum severance pay that would be payable is reduced to 18 months of total annual gross compensation (fixed and variable) beyond the age of 60, and to 12 months beyond the age of 62-and-a-half. No compensation would be paid in the event of departure beyond the age of 65.

Other benefits

The Chairman and Chief Executive Officer has the use of a company car and is covered by executive officer unemployment insurance.

In accordance with the provisions of Article L. 225-37-2 of the French Commercial Code, the compensation principles stated above are subject to the approval of the Company's shareholders at the annual general meeting of 21 May 2019 (9th resolution).

3.4.2.2 IMPLEMENTATION OF COMPENSATION POLICY

3.4.2.2.1 2019 variable compensation criteria

In accordance with the compensation policy of the Chairman and Chief Executive Officer described in section 3.4.2.1 of this chapter, the Chairman and Chief Executive Officer's annual variable compensation for 2019 may reach, as was the case in previous years, a maximum of 150% of his annual fixed compensation. It will continue to be based on quantifiable criteria of the same type as in previous years (EBITDA, recurring cash flow and contribution of new developments) and on qualitative criteria relating to the Group's priorities that also factor in its CSR objectives.

As regards qualitative criteria for 2019, representing a maximum of 40% of fixed compensation, they are once again linked to the Group's priorities, including the implementation of the Group's long-term strategy by the Chairman and Chief Executive Officer for one half and the day-to-day management of the Group for the other half. Consequently, the Board of Directors will pay special attention to changes in the Group's profile in view of the momentum in the global chemicals industry and the ongoing implementation of the long-term strategy with respect to (i) innovation in support of sustainable development; (ii) geographic expansion; and (iii) the progress of the targeted acquisition policy, in particular in adhesives and advanced materials. As regards geographic expansion and the Group's investment policy, the Board will pay special attention to the continued progress of the Group's major investment policies in accordance with the schedule and the defined investment costs. These projects notably include exceptional investment projects carried out in thiochemicals in Malaysia and specialty polyamides in Asia for a total amount of approximately €500 million over four years. Lastly, the Board will review the progress of the main development projects being considered but not yet announced by the Group. The Board will also monitor a number of quantifiable components, which comprise approximately one third of the criteria for assessing the Group's operational management, such as consolidating the already very strong workplace safety record, the sites' environmental performance, working capital requirement and the management of fixed costs. It will also monitor progress made in the area of corporate social responsibility, in particular as regards its commitments in the three areas of (i) portfolio sustainability assessment; (ii) the climate plan and materiality analysis; (iii) strengthening cross-divisional initiatives (commercial, digital, cyber-security, data management and supply chain excellence) as well as talent management and development.

In accordance with the provisions of Article L. 225-37-2 of the French Commercial Code, payment of the annual variable compensation due for 2019 will take place subject to the approval of the Chairman and Chief Executive Officer compensation components by the Company's 2020 annual general meeting in accordance with the provisions of Article L. 225-100 of said code.

3.4.2.2.2 Components of compensation due or awarded to the Chairman and Chief Executive Officer for 2018 submitted to a shareholder vote

In accordance with the provisions of Article L. 225-100 of the French Commercial Code, the following presentation of the components of compensation due or awarded to Thierry Le Hénaff, Chairman and Chief Executive Officer of the Company, for the year ended 31 December 2018, is submitted to the shareholders' vote at the annual general meeting of 21 May 2019 (10th resolution).

COMPONENTS OF COMPENSATION DUE OR AWARDED TO THIERRY LE HÉNAFF FOR 2018

Components of compensation due or awarded for 2018	Amounts or accounting valuation submitted to vote	Presentation
Fixed compensation	€900,000	In accordance with the renewal of the term of office as a Director of Thierry Le Hénaff, approved at the annual general meeting of 7 June 2016, his annual fixed compensation was set at €900,000 per year, from this date and for the duration of his term as a director.
Annual variable compensation	€1,350,000	The amount of the variable part due for 2018, which could represent up to 150% of the annual fixed compensation, was set by the Board of Directors on 26 February 2019, on the basis of the quantifiable and qualitative criteria set by the Board of Directors in 2018 and the fulfillment of these criteria noted on 31 December 2018, as follows: • **concerning the three quantifiable criteria** linked to the Group's financial performance, the achievement rates by criterion were as follows: ◦ 100% for EBITDA, whose weighting represents 55%, taking into account the excellent performance of the Group with EBITDA up again by 6% in 2018 on the excellent 2017 performance (+8% at constant exchange rates), reaching another record high at €1,474 million in a more volatile economic environment characterized by higher raw material prices, the strengthening of the euro notably against the US dollar in the first half of 2018 and some geopolitical tensions; ◦ 100% for recurring cash flow, whose weighting represents 27.5%. The recurring cash flow reached an excellent level again in 2018, totaling €602 million despite an acceleration of organic growth investments. The EBITDA to cash conversion rate amounts to 38% despite the negative impact of higher raw materials on working capital. This result reflects the Group's very good operational performance, the strong discipline regarding industrial capital expenditure and the tight management of working capital. This cash generation enabled the Group to maintain its net debt at around €1 billion, representing 0.7 times annual EBITDA; and ◦ 100% for the contribution of new developments, whose weighting represents 27.5%. The Board of Directors took into account the commercial success of the main innovation platforms such as 3D printing, materials for rechargeable batteries, innovative solutions in consumer electronics and sports, lighter materials and hot-melt encapsulation adhesives in automotive and electronics industries as well as the many products improving the performance and insulation of residential buildings, among which large format tile adhesives and high thickness leveling screeds, and adhesives for thinner diapers. The Board also took into account the diversification into higher value-added products for downstream acrylics and the Group's reinforced presence at large key accounts. The variable compensation due in respect of the quantifiable criteria thus amounted to 110% of the annual fixed compensation; and • **concerning the qualitative criteria** 50% of which is linked to the implementation of the Group's strategy and main operational priorities, 2018 was marked, in terms of acquisitions, by the successful integration of XL Brands, the further implementation of synergies with Den Braven and the closing of an important acquisition of a new cyanoacrylate technology for instant adhesives with Afinitica, as well as the pending acquisition by Arkema of Jurong's interest in Sunke, their joint venture that produces acrylic monomers in China, with a limited impact on net debt. In terms of capital expenditure, the Board of Directors further acknowledged the completion or progress of several industrial projects that are complex, significant and key for the Group's long-term positioning such as the construction of the PEKK unit in the United States, a new ultra-high performance polymer, capacity increases of thiochemical, acrylics and UV curing resins units respectively in Malaysia, Texas and China; and the ongoing studies regarding the extension of specialty polyamides capacities in Asia with the construction of a new monomers and polyamide 11 polymers unit, for which a decision on the location has yet to be finalized. The high-potential long-term strategic growth areas (3D, batteries, lightweight materials, water management, bio-based products) continued to grow. The following day-to-day operational management elements, which also accounted for 50% and of which one-third were quantifiable, were also noted. The Board noted in particular the following achievements for the quantifiable elements: continued tight management of fixed costs and working capital (with a working capital to sales ratio of 13.4%, very close to the historically low level of 13.1% in 2017, in a more unfavourable raw material context) as well as safety-related results which reached their lowest-ever level with a TRIR of 1.3 accidents per million hours worked. The Board finally took into account the implementation or step-up of several significant cross-functional initiatives in the areas of digital transformation, with the appointment of a dedicated director; commercial excellence with the roll-out of a number of programs; cybersecurity, for which a director was also appointed together with a network of local correspondents; the CSR roadmap and the supply chain, as well as the proactive human resources management with the replacement of the chief financial officer and the creation of a Top Executive Academy for managers. Consequently, the variable compensation due in respect of qualitative criteria was set at 40% of the annual fixed compensation.

Components of compensation due or awarded for 2018	Amounts or accounting valuation submitted to vote	Presentation
		In total, the variable compensation for 2018 amounts to €1,350,000. It reflects the very strong performance for the year and the continued transformation of the Group's profile. It represents 150% of the 2018 annual fixed compensation and an overall achievement rate of 100%. The payment of this annual variable compensation is subject to the shareholders' approval at the annual general meeting to be held on 21 May 2019 (10th resolution).
Deferred variable compensation	N/A	Thierry Le Hénaff receives no deferred variable compensation.
Exceptional compensation	N/A	Thierry Le Hénaff receives no exceptional compensation.
Attendance fees	N/A	Thierry Le Hénaff receives no attendance fees from Arkema.
Stock options	N/A	Thierry Le Hénaff does not receive any stock options.
Performance shares	€1,879,200	Making use of the authorization granted by the annual general meeting of 7 June 2016 (17th resolution), at its meeting of 5 November 2018, the Board of Directors awarded 30,000 performance shares (representing 0.04% of share capital) to Thierry Le Hénaff (out of a total of 360,100 shares granted to around 1,400 grantees, representing 8.3% out of a maximum of 10%). The shares will vest at the end of a three-year period subject to a presence condition and if four performance targets are met: REBIT margin, EBITDA to cash conversion rate, comparative Total Shareholder Return and return on average capital employed. Each criterion is applied to 25% of the awarded rights. The vesting period is followed by a two-year mandatory holding period. Further details on the criteria may be found in section 3.5.1 of this chapter. In the event of outperformance, and pursuant to the aforementioned performance conditions set out in section 3.5.1 of this chapter, this allocation could rise to 33,000 shares, or 110% of the maximum allocation.
Pension	€450,000	Since 7 June 2016, when the supplementary defined benefit pension scheme (governed by Article L. 137-11 of the French Social Security Code) from which he benefited was terminated, Thierry Le Hénaff benefits from an additional annual payment corresponding to 20% of his total fixed and variable compensation for the year concerned, to enable him to build up his supplementary retirement benefits, year after year. Thierry Le Hénaff has committed to invest this entire amount, net of any contributions and tax, in investment vehicles dedicated to the financing of his supplementary retirement benefits.
Benefits in kind	€6,720	Thierry Le Hénaff has the use of a company car.

COMPONENTS OF COMPENSATION PAID OR AWARDED FOR 2018 ALREADY APPROVED BY THE ANNUAL GENERAL MEETING

Severance pay	No payment	*Thierry Le Hénaff benefits, as part of his term of office, from a severance package in an amount not exceeding two years' gross fixed and variable compensation, calculated based on the achievement of five quantitative criteria set by the Board of Directors and approved by the annual general meeting (total recordable injury rate (TRIR), annual variable compensation, comparative EBITDA margin, working capital and return on capital employed).* *The amount of this package will be calculated on the basis of the fulfillment of the following five demanding performance conditions:* • *TRIR: the total recordable injury rate (TRIR) would have to have decreased by at least 5% per year (average compound rate) between 31 December 2010 and the date at which the performance condition is assessed;* • *annual variable compensation: on average, the annual variable compensation paid during the three years preceding departure would have to be at least 50% of the maximum amount payable;* • *return on capital employed: the average of net operating income over capital employed (recurring operating income - actual income tax [1])/(capital employed - provisions) for the last three years prior to the termination date would have to exceed the Group's cost of capital for the year preceding his reappointment, i.e. 7% in 2015. Capital employed and provisions are those at year-end, and recurring operating income of companies acquired during the year would be included on a full year basis and that of divested companies would be excluded;*

		• *working capital: the year-end working capital over annual sales ratio would have to have decreased by at least 2.5% per year (average compound rate) between 31 December 2005 and the date at which the performance condition is assessed; and* • *comparative EBITDA margin: this financial performance indicator will continue to be measured against that of competitors in the chemicals industry comparable to the Arkema Group. The growth in the Group's EBITDA margin would have to be at least equal to the average growth in the EBITDA margin of the companies in the peer group between 31 December 2005 and the date at which the performance condition is assessed.* *The value of the end-of-period index to be taken into account for the computation of the above criteria would be the average of the indices calculated at Group level over the three years for which financial statements have been published prior to the termination date.*
Severance pay	No payment	*The termination indemnity allocation scale is determined as follows:* • *if 5 conditions were met, Thierry Le Hénaff would receive 100% of the maximum of the severance package;* • *if 4 out of 5 conditions were met, Thierry Le Hénaff would receive 90% of the maximum of the severance package;* • *if 3 out of 5 conditions were met, Thierry Le Hénaff would receive 70% of the maximum of the severance package;* • *if 2 out of 5 conditions were met, Thierry Le Hénaff would receive 40% of the maximum of the severance package;* • *if fewer than two conditions were met, no severance pay would be paid.* *In addition, the Board of Directors has decided to gradually reduce the maximum severance pay that would be payable to 18 months of total annual gross compensation (fixed and variable) beyond the age of 60, and 12 months of total annual gross compensation (fixed and variable) beyond the age of 62-and-a-half. No compensation would be paid in the event of departure beyond the age of 65.* *In accordance with the related-party agreements and commitments procedure, this commitment was authorized by the Board of Directors' meeting of 2 March 2016, and approved by the annual general meeting of 7 June 2016 (5th resolution).*
Non-compete compensation	N/A	*Thierry Le Hénaff is not entitled to any non-compete compensation.*

(1) On recurring income (in particular excluding the impact of M&A, restructuring operations).

3.4.2.3 SUMMARY TABLES

SUMMARY OF COMPENSATION, STOCK OPTIONS AND SHARES AWARDED TO THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER, EXCLUDING COMPENSATION INDEMNITIES (TABLES 1 AND 2 OF AMF RECOMMENDATIONS AND AFEP-MEDEF CODE)

	2018		2017	
(Gross amounts in euros)	Due for the year	Paid during the year	Due for the year	Paid during the year
Fixed compensation	900,000	900,000	900,000	900,000
Variable compensation [(1)]	1,350,000	1,350,000	1,350,000	1,252,500
Exceptional compensation	None	None	None	None
Attendance fees	None	None	None	None
TOTAL	**2,250,000**	**2,250,000**	**2,250,000**	**2,152,500**
Pension [(2)]	450,000	450,000	450,000	254,250
Benefits in kind – car	6,720	6,720	6,720	6,720
Executive officer unemployment insurance	17,410	17,189	17,189	16,921
Performance shares [(3)]		1,879,200		1,907,700

(1) Variable compensation is paid in the year following the period for which it is calculated based on the criteria set out in section 3.4.3.2 of this chapter and subject to shareholder approval of the components of compensation paid or awarded for the period, in accordance with the provisions of Article L. 225-100 of the French Commercial Code.

(2) 20% of the annual compensation (fixed and variable) since 7 June 2016.

(3) Value of performance shares awarded during the year calculated according to the method used in the consolidated financial statements, detailed in note 27.2 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this document.

PERFORMANCE SHARES GRANTED TO THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER IN 2018 (TABLE 6 OF AMF RECOMMENDATIONS AND AFEP-MEDEF CODE)

	No. and date of plan	Number of shares granted in 2018	Vesting date/End of holding period	Value of shares according to the method used in the consolidated financial statements
Thierry Le Hénaff	2018 plan of 5 November 2018 (three-year vesting period + two-year holding period)	30,000 (1) (2)	4 November 2021 and 4 November 2023	€1,879,200

(1) i.e., less than 0.04% of the share capital.
(2) 33,000 in the event of outperformance. For further details, see section 3.5.1 of this chapter.

PERFORMANCE SHARES AWARDED TO THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER FOR WHICH THE HOLDING PERIOD EXPIRED IN 2018 (TABLE 7 OF AMF RECOMMENDATIONS AND AFEP-MEDEF CODE)

	No. and date of plan	Number of shares for which the holding period ended in 2018	Vesting conditions
Thierry Le Hénaff	2014 plan of 13 November 2014	23,270 (1)	Conditions of presence and performance: 2017 EBITDA (35%), 2017 EBITDA margin compared to a peer group (30%), comparative TSR over the period from 2015 to 2017
	Plan of 7 June 2016 (2)	16,667	Subject to continuing employment by the Group

(1) Or 89.5% (plan achievement rate) of the 26,000 shares granted in 2014.
(2) Free share award plan approved by the annual general meeting on 7 June 2016 as compensation for termination of the defined benefit supplementary pension scheme benefiting the Chairman and Chief Executive Officer.

STOCK OPTIONS EXERCISED DURING 2018 BY THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER (TABLE 5 OF AMF RECOMMENDATIONS)

	No. and date of plan	Number of options exercised	Exercise price
Thierry Le Hénaff	2011 plan of 4 May 2011	10,000	€65.92

In accordance with the AFEP-MEDEF Code and AMF recommendations, the history of stock options and performance share awards, for the plans in place, is set out in the tables presented in section 3.5 of this chapter.

SUMMARY OF EMPLOYMENT CONTRACT, PENSION BENEFITS AND OTHER BENEFITS IN 2018 (TABLE 11 OF AMF RECOMMENDATIONS AND AFEP-MEDEF CODE)

	Employment contract		Supplementary pension benefits		Compensation or benefits due or potentially due upon termination or change of position		Indemnities resulting from non-compete agreement	
	Yes	No	Yes	No	Yes	No	Yes	No
Thierry Le Hénaff		X		X (1)	X			X

(1) Thierry le Hénaff has not been covered by the defined benefit pension scheme since 7 June 2016. For further details, see section 3.4.2.1 of this chapter.

FINANCIAL CONDITIONS APPLICABLE TO THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER FOR TERMINATION OF OFFICE, IN ACCORDANCE WITH THE CIRCUMSTANCES OF TERMINATION

	Dismissal for serious or gross misconduct	Resignation	Forced departure	Retirement
Severance pay	None	None	Compensation entirely contingent on fulfillment of five performance criteria (1): • before 60 years: maximum of 24 months of total annual gross compensation (fixed and variable) (2) • after 60 years: maximum of 18 months of total annual gross compensation (fixed and variable) (2) • after 62 years and six months: maximum of 12 months of total annual gross compensation (fixed and variable) (2) • after 65 years: none	None
Non-compete compensation	None			
Supplementary defined benefit pension scheme	None			
Unvested performance shares	Null and void	Null and void	Entitlement to unvested shares subject to a decision of the Board of Directors in accordance with best practice and fulfillment of the performance conditions set out in the plans.	Continuing entitlement

(1) TRIR - total recorded injury rate, annual variable compensation, comparative EBITDA margin, working capital and return on capital employed.
(2) Fixed annual compensation for the year in which the Chairman and Chief Executive Officer is forced to step down. Variable compensation corresponds to the average of the last two years of variable compensation paid prior to departure.

3.4.3 Compensation of Executive Committee members other than the Chairman and Chief Executive Officer

3.4.3.1 COMPENSATION PRINCIPLES

Every year, the Nominating, Compensation and Corporate Governance Committee reviews the fixed and variable compensation structure proposed by the Chairman and Chief Executive Officer for Executive Committee members. This compensation comprises:

(i) two short-term components:

- an annual fixed compensation based on the scope of the respective duties and responsibilities of each Executive Committee member,
- an annual variable amount, which may represent up to 85% of the annual fixed compensation, based on general quantifiable targets identical to those set for the Chairman and Chief Executive Officer, and closely aligned with the Group's financial performance and the implementation of its strategy, and quantitative and qualitative targets (including CSR targets) designed to reward the individual performance of each Executive Committee member within their respective area of responsibility; and

(ii) a long-term incentive through the award of performance shares fully subject to performance conditions.

In the past, Executive Committee members also received stock options (see section 3.5 and note 27 to the consolidated financial statements for the year ended 31 December 2018 in section 5.3.3 of this chapter).

Since 2010, Executive Committee members have been required to retain at least 20% of their vested shares in registered form for as long as they remain in office, as well as a number of shares obtained upon the exercise of stock options corresponding to at least 40% of the net capital gain on acquisition. These obligations are suspended once the total value of the Arkema shares held, whatever their origin, is equivalent to 150% of their gross annual fixed compensation. The Chairman and Chief Executive Officer is subject to specific individual holding requirements (see section 3.4.2.1 of this chapter).

Each year Executive Committee members certify that they have not used any financial instruments to hedge the risk of losses on the stock options or performance share rights that have been, or will be, awarded to them by the Company.

The amount and structure of Executive Committee members' compensation packages are regularly compared to the market practices for equivalent positions in companies operating in the same industry with similar market capitalizations.

Executive Committee members do not receive any attendance fees as directors of Group companies.

3.4.3.2 ANNUAL COMPENSATION OF EXECUTIVE COMMITTEE MEMBERS OTHER THAN THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER

The total gross fixed compensation awarded by the Company to Executive Committee members [1] for 2018 amounted to €2,523,600.

The total variable compensation paid by the Company to Executive Committee members in 2018 in respect of 2017 amounted to €1,857,720.

Based on the targets approved by the Board of Directors at its meeting on 21 February 2018, namely (i) general quantifiable targets identical to those that apply to the Chairman and Chief Executive Officer and relating to growth in EBITDA, recurring cash flow, and margin on variable costs of new developments, and (ii) individual quantitative and qualitative targets for each member, the Board of Directors' meeting of 26 February 2019, on recommendation by the Nominating, Compensation and Corporate Governance Committee, approved Executive Committee members' variable compensation for 2018, which could amount to up to 85% of the fixed compensation for each member. The total annual variable compensation awarded to Executive Committee members for 2018 stood at €1,950,215.

In addition, on recommendation by the Nominating, Compensation and Corporate Governance Committee, the Board of Directors set the Executive Committee members' compensation for 2019 as follows:

- total gross fixed compensation has been set at €2,616,928, in line with market practices and with the changes to the Group's compensation policy for the 2019 financial year;
- variable compensation will continue to be based on general quantifiable criteria related to the Group's financial performance as measured by targets for EBITDA, recurring cash flow and margin on variable costs of new developments, as well as on quantifiable and qualitative criteria specific to each member. Variable compensation may represent up to 85% of fixed compensation for each member.

Consequently, compensation due and paid to Executive Committee members, excluding the Chairman and Chief Executive Officer, for 2018 and 2017 was as follows:

	2018		2017	
(Gross amounts in euros)	Due for the year	Paid during the year	Due for the year	Paid during the year
Fixed compensation	2,523,600	2,523,600	2,313,000	2,313,000
Variable compensation	1,950,215	1,857,720	1,857,720	1,809,595
TOTAL	4,473,815	4,381,320	4,170,720	4,122,595

3.4.3.3 BENEFIT SCHEMES

Executive Committee members are covered by the same benefit schemes (death/disability and health insurance) as employees of Arkema France. They also benefit from a defined contribution pension scheme based on the part of their compensation that exceeds eight times the annual ceiling for social security contributions and is excluded from the contribution base for compulsory pension schemes. No Executive Committee member benefits from a supplementary defined benefit pension scheme.

(1) NB: Marie-José Donsion was appointed to Arkema's Executive Committee on 1 July 2018. Consequently, herself and Thierry Lemonnier had a four-month integration period.

3.4.4 Stock transactions by the Company's executives

Pursuant to article 223-26 of the AMF general regulation, the following table details the transactions declared by the individuals concerned by Article L. 621-18-2 of the French Monetary and Financial Code in 2018:

2018	Type of financial instrument	Acquisition (1)	Disposal (2)
Christophe André	FCPE* units	1,000	
Luc Benoit-Cattin	Arkema shares	11,211	406
	FCPE* units	1,000	1,175
Bernard Boyer	Arkema shares	9,405	2,300
	FCPE* units	1,000	904
Marie-Ange Debon	Arkema shares	550	
Michel Delaborde**	Arkema shares	18,640	19,506
	FCPE* units	800	897
Vincent Legros	FCPE* units	915	
Thierry Le Hénaff	Arkema shares	49,937	22,771
Thierry Lemonnier	Arkema shares	18,740	2,500
	FCPE* units		229
Marc Schuller	Arkema shares	31,530	23,815
	FCPE* units	1,000	1,422

* *FCPE invested in Arkema shares.*
** *Including related parties within the meaning of Article R. 621-43-1 of the French Monetary and Financial Code.*
(1) Including subscriptions and exercise of stock options or vested performance shares.
(2) Including sales and donations.

3.5 SHARE-BASED COMPENSATION

Arkema has been eager to put in place share-based compensation instruments in order to secure the loyalty of executives and certain employees, and involve them more closely in the Group's future growth as well as its stock market performance.

Accordingly, the Board of Directors put in place stock option and performance share plans. No stock option plans have been set up since 2012.

The accounting treatment of these share-based compensation instruments is described in note 27 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this document.

STOCK-BASED COMPENSATION PRINCIPLES

The share-based compensation policy by way of performance share grants adopted by the Board of Directors on the recommendation of the Nominating, Compensation and Corporate Governance Committee, is as follows:

- closely involving executives, senior managers and certain employees who have performed exceptionally well or whom the Group wants to retain, in the Group's future growth and stock market performance in the medium term. In 2018, there were around 1,400 beneficiaries;
- setting a vesting period of three years for performance shares awarded to the Chairman and Chief Executive Officer and the members of the Executive Committee, followed by a holding period of two years, *i.e.*, a total vesting-holding period of five years;
- submitting the vesting of performance shares to demanding performance criteria. At the date of this document, awards without performance conditions have been limited to allocations representing no more than 70 shares. In 2016, the threshold was 80 shares;
- rewarding outperformance if targets are significantly exceeded. In 2018, in the interests of simplicity, the maximum achievement rate for each criterion was set at 120% (compared to between 120% and 130%, depending on the criterion, since 2016) and the global allocation was capped at 110% of the grant;
- limiting the rights awarded to the Chairman and Chief Executive Officer in respect of annual performance share plans to a maximum of 10% of all rights awarded in any annual plan;
- avoiding any dilution for shareholders by allocating existing shares acquired under the share buyback program to holders of performance share rights; and
- in accordance with the AFEP-MEDEF Code, granting performance share plans at the same period every year, *i.e.*, in November since 2013.

In addition, in accordance with the law and the AFEP-MEDEF Code, the Board of Directors sets a fixed number of shares obtained upon the exercise of stock options or vested shares that must be retained by the Chairman and Chief Executive Officer and by each Executive Committee member (see sections 3.4.2.1 and 3.4.3.1 of this chapter).

PERFORMANCE CRITERIA

Since 2016, the performance share plans are subject to four demanding performance criteria, aligned with the Group's long-term ambitions and strategic priorities, each applying to 25% of the total award:

- REBIT margin;
- EBITDA to cash conversion rate;
- comparative Total Shareholder Return; and
- Return on average capital employed.

All the targets set for these criteria are fully consistent with the medium and long-term targets – particularly the 2023 targets – announced to the financial markets and are similar to the internal targets.

The achievement rates for the last three plans that ultimately vested are as follows:

Date of plan	Vesting year	Vesting rate
2012	2015	100%
2013	2017	71.3%
2014	2018	89.5%

RENEWAL OF THE AUTHORIZATION TO GRANT PERFORMANCE SHARES

On the recommendation of the Nominating, Compensation and Corporate Governance Committee, at its meeting of 26 February 2019, the Board of Directors decided to propose to the annual general meeting to be held on 21 May 2019, the renewal of the authorization given to the Board in 2016 to grant performance shares. Under this new 38-month authorization, the Board would be authorized to grant up to 1,500,000 performance shares (1,450,000 shares under the previous authorization), representing less than 2% of the share capital at the date of the general meeting.

The Board of Directors has confirmed the broad principles of the share-based payment policy described above and confirmed that it will continue to use the four performance criteria from the previous authorization which remain perfectly aligned with the Group's long-term ambitions and strategic priorities. If one of these criteria should cease to be relevant or if a new criterion should prove more appropriate, the Board shall propose a criterion with a similar long-term stringency. The Board of Directors indicated that for each of these criteria, scales and assigned targets will continue to be fully in line with the long-term financial objectives (currently through to 2023) announced to the financial markets and similar to the internal targets.

The Board also stipulated that for plans decided as from 2019, and subject to shareholders approval:

- the maximum achievement rate for each criterion would be set at 120% with no cap on the global allocation (*i.e.*, in practice, a global allocation rate of 120%) in order to reward outperformance if targets are significantly exceeded;
- the Board may decide to award existing shares, acquired as part of the share buyback program, or to issue new shares;
- for the comparative Total Shareholder Return criterion, there will be no grants below median; and
- as regards return on average capital employed, REBIT and capital employed, which were already adjusted for the impact of major acquisitions, the year of the acquisition and the following two years will also be adjusted for the impact of exceptional investments in progress until the year in which the investment is commissioned and the following two years. In light of the Group's ambitious investment and targeted acquisition policy, these adjustments will enable the Group to measure performance more effectively by factoring in the contribution of (i) major capital expenditure programs once these are at least partially up and running, and (ii) acquisitions once the initial synergies have been implemented.

The adjustments made to determine the level of achievement will be audited by the Group's statutory auditors.

Additional information about the resolution proposed to the vote at the annual general meeting on 21 May 2019 is provided in section 7.2 of this document.

Lastly, on the recommendation of the Nominating, Compensation and Corporate Governance Committee, the Board of Directors amended the holding requirements for shares granted to the Chairman and Chief Executive Officer. Consequently, the Chairman and Chief Executive Officer will be required to hold a number of Arkema shares – either granted or otherwise acquired – equivalent to 200% of his annual gross fixed compensation, plus a minimum of 10% of vested shares or stock options exercised under each plan.

BLACK-OUT PERIODS

In compliance with regulation (EU) no. 596/2014 of 16 April 2014 on market abuse (known as the Market Abuse regulation or MAR), the AMF general regulation and the AFEP-MEDEF Code, and in order to prevent insider trading, Arkema has introduced black-out periods. During these periods, any person who has regular or one-time access to undisclosed accounting or financial information relating to Arkema and its subsidiaries is prohibited from trading in Arkema shares:

- 30 calendar days before the publication of the annual and half-yearly financial statements, as well as the day of publication; and
- 15 calendar days before the publication of quarterly financial information, as well as the day of publication.

These black-out periods notably apply to the Executive Committee and Management Committee members.

3.5.1 Performance share plans

2018 PERFORMANCE SHARE PLANS

In accordance with the share-based compensation policy in force within the Group and making use of the authorization given by the annual general meeting of 7 June 2016, the Board of Directors decided, at its meeting on 5 November 2018, to award 359,485 performance shares to some 1,400 beneficiaries, including the Chairman and Chief Executive Officer and the Executive Committee members.

For employees in France, the vesting period is three years, followed by a two-year holding period. In accordance with the law and the AFEP-MEDEF Code, the Chairman and Chief Executive Officer and the members of the Executive Committee are subject to an additional requirement to retain the shares they have been awarded. For employees outside France, the vesting period is four years, with no holding period, so that the vesting of the shares may correspond to the chargeability of the related taxes.

The vesting of the shares is, for all beneficiaries, subject to their continued presence within the Group. In addition, for awards of more than 70 shares, vesting is entirely subject to the achievement of four demanding performance criteria.

The performance criteria and relative weighting are unchanged from the 2017 performance share plan. They relate to the REBIT margin, the EBITDA to cash conversion rate, the comparative Total Shareholder Return (TSR) and Return on average capital employed. For each of these criteria, performance will be assessed over a three-year period, from 2018 to 2020.

The various indicators used to measure fulfillment of the performance criteria will be based on the annual consolidated financial statements published by Arkema in accordance with the international financial reporting standards (IFRS) applicable at the date on which the Board of Directors approved the performance share plan. They will be audited by the Group's statutory auditors.

Moreover, in the interests of simplicity and coherence between the four criteria, the maximum global allocation rate for each of these criteria has been set at 120%. However, the overall award rate for all four criteria may not exceed 110%. Hence, the maximum number of shares that may be awarded is 395,434, *i.e.*, 27% of the total number of performance shares that may be awarded pursuant to the authorization granted by the annual general meeting on 7 June 2016.

For the 2018 plan, the four performance criteria, each applying to 25% of the total award, are as follows:

- REBIT margin

Performance in respect of this criterion will be evaluated using the average REBIT margins for 2018, 2019 and 2020 ("average margin").

The targets for this criterion have been increased so that it continues to measure the Company's progress in line with the 2023 objectives. As a result, the vesting scale is now as follows:

Average margin	Vesting rate
9.5%	25%
10%	50%
11%	100%
11.5%	120%

Between these different values, the vesting rate will be determined based on a linear scale.

- EBITDA to cash conversion rate

The achievement rate will be determined using the average conversion rate for 2018, 2019 and 2020.

The vesting scale is as follows:

Conversion rate	Vesting rate
25%	0%
35%	100%
40%	120%

Between these different values, the vesting rate will be determined based on a linear scale.

To calculate this indicator, free cash flow will be restated to offset the impact of the raw materials environment on changes in working capital.

- Comparative Total Shareholder Return (TSR)

TSR would be determined over a three-year period, from 2018 to 2020.

The peer group remains unchanged and comprises Akzo Nobel, BASF, Clariant, DSM, HB Fuller, Lanxess, Solvay, Evonik and the CAC 40 index.

The vesting scale will be as follows:

Arkema's ranking by descending order of TSR	Vesting rate
1st	120%
2nd	110%
3rd	100%
4th	75%
5th	50%
6th	25%
7th to 10th	0%

The TSR continues to be calculated as follows:

TSR = (share price at the end of the period - share price at the beginning of the period + sum of the dividends per share paid out during the period)/share price at the beginning of the period.

To minimize the effects of market volatility on stock prices, the share price used to determine prices at beginning and end of the period will be a six-month average; and

- Return on average capital employed

The indicator used ("return on average capital employed") will be the average of return on average capital employed for 2018, 2019 and 2020.

The vesting scale will be as follows:

Return on average capital employed	Vesting rate
10%	0%
11.5%	100%
12.5%	120%

Between these different values, the vesting rate will be determined based on a linear scale.

To determine the return on average capital employed in the context of performance share plans, recurring operating income and capital employed will be restated, in the event of a major acquisition, to exclude the impact of such acquisition in the year of acquisition and the following two years.

SUMMARY OF 2018 PERFORMANCE SHARE PLANS

	Plan for employees in France	Plan for employees outside France
Date of annual general meeting	7 June 2016	7 June 2016
Authorized performance share awards as a % of the Company's share capital	1.94%	
Date of the Board of Directors' meeting	5 November 2018	5 November 2018
Number of rights awarded	231,820	127,665
of which to the Chairman and CEO	30,000	-
Total by authorization	1,147,400 shares, *i.e.*, 1.52% of the share capital at the date of the annual general meeting (1)	
Origin of shares to be awarded when the rights vest	-	-
Number of canceled rights (2)	-	-
Number of vested shares (3)	-	-
Number of rights still to vest at 31 December 2018	231,820	127,665
Vesting period	3 years	4 years
Holding period	2 years	None
Performance conditions	REBIT margin over the period from 2018 to 2020 (25%) EBITDA to cash conversion rate over the period from 2018 to 2020 (25%) Comparative TSR over the period from 2018 to 2020 (25%) Return on average capital employed over the period from 2018 to 2020 (25%)	
Vesting rate	-	

(1) 2016, 2017 and 2018 plans. Maximum number of shares that may be awarded, taking into account the potential award of up to 110% of the share rights subject to performance conditions.
(2) Performance share rights canceled because the holders left the Group.
(3) Shares awarded to the grantees (including shares awarded before the end of the vesting period, in the event of death for example).

PREVIOUS PERFORMANCE SHARE PLANS

The plans implemented from 2006 to 2014 have all expired.

2016 AND 2017 PERFORMANCE SHARE PLANS

	2016		2017	
	Plan for employees in France	Plan for employees outside France	Plan for employees in France	Plan for employees outside France
Date of annual general meeting	7 June 2016			
Authorized performance share awards as a % of the Company's share capital	1.94%			
Date of the Board of Directors' meeting	9 November 2016		8 November 2017	
Number of rights awarded	235,835	122,080	230,695	129,405
of which to the Chairman and CEO	30,000	-	30,000	-
Total by authorization	787,915 shares, *i.e.*, 1.04% of the share capital at the date of the annual general meeting (1)			
Origin of shares to be awarded when the rights vest	-	-	-	-
Number of canceled rights (2)	4,300	5,335	460	4,000
Number of vested shares (3)	500	-	-	-
Number of rights still to vest at 31 December 2018	231,035	116,745	230,235	125,405

	2016		2017	
	Plan for employees in France	Plan for employees outside France	Plan for employees in France	Plan for employees outside France
Vesting period	3 years	4 years	3 years	4 years
Holding period	2 years	None	2 years	None
Performance conditions	REBIT margin over the period from 2016 to 2018 (25%) EBITDA to cash conversion rate over the period from 2017 to 2018 (25%) comparative TSR over the period from 2016 to 2018 (25%) return on average capital employed over the period from 2016 to 2018 (25%)		REBIT margin over the period from 2017 to 2019 (25%) EBITDA to cash conversion rate over the period from 2017 to 2019 (25%) comparative TSR over the period from 2017 to 2019 (25%) return on average capital employed over the period from 2017 to 2019 (25%)	
Vesting rate	-		-	

(1) Maximum number of shares that may be awarded, taking into account the potential award of up to 110% of the share rights subject to performance conditions.
(2) Performance share rights canceled because the holders left the Group.
(3) Shares awarded to the grantees (including shares awarded before the end of the vesting period, in the event of death for example).

2014 AND 2015 PERFORMANCE SHARE PLANS

	2014	2015
Date of annual general meeting	4 June 2013	
Authorized performance share awards as a % of the Company's share capital	2%	
Date of the Board of Directors' meeting	13 November 2014	9 November 2015
Number of rights awarded	275,000	345,120
of which to the Chairman and CEO	26,000	26,000
Total by authorization	887,238 shares, *i.e.*, 1.41% of the share capital at the date of the annual general meeting [1]	
Origin of shares to be awarded when the rights vest	Share buyback	
Number of canceled rights [2]	31,013	14,740
Number of vested shares [3]	243,987	650
Number of rights still to vest at 31 December 2018	0	329,730
Vesting period	4 years	4 years
Holding period	None	None
Performance conditions	EBITDA growth by 2017 (35%), 2017 EBITDA margin compared to a peer group (30%), comparative TSR over the period from 2015 to 2017 (35%)	EBITDA growth by 2018 (35%), EBITDA to cash conversion rate in 2017 and 2018 (30%), comparative TSR over the period from 2016 to 2018 (35%)
Vesting rate	EBITDA growth: 100% Comparative EBITDA margin: 65% Comparative TSR over the period from 2015 to 2017: 100% Overall achievement rate: 89.5%	EBITDA growth: - EBITDA to cash conversion rate: - Comparative TSR over the period from 2016 to 2018: - Overall achievement rate: -

(1) 2013, 2014 and 2015 plans.
(2) Performance share rights canceled because the holders left the Group or because the performance conditions were not met.
(3) Shares awarded to the grantees (including shares awarded before the end of the vesting period, in the event of death for example).

3.5.2 Stock option plans

In accordance with the share-based compensation policy, no stock option plan has been granted since 2012.

Under the terms and conditions of the plan decided in 2011, which is the only plan still in place and expires on 4 May 2019, and in accordance with the AFEP-MEDEF Code and stakeholder requirements in this regard:

- stock options were made subject to performance criteria chosen to align medium-term share-based compensation with the Group's strategy; and
- the exercise price was set by taking the average opening price of the shares during the twenty trading days prior to the date of the Board of Directors' meeting, with no discount applied.

As part of these plans, the Board of Directors authorized the grant of a number of options representing 1% of the Company's share capital at the date of the annual general meeting that authorized the plans.

At 31 December 2018, 42,728 stock options from the 2011 plan were still outstanding, *i.e.*, 0.05% of the Company's share capital on that date.

In accordance with the law, and in order to preserve the beneficiaries' rights, an adjustment was made to the number of outstanding options and their exercise price as a result of the capital increase with preferential subscription rights carried out on 15 December 2014.

HISTORY OF STOCK OPTION PLANS (TABLE 8 IN THE AMF RECOMMENDATIONS AND AFEP-MEDEF CODE)

	2011	
Date of annual general meeting	15 June 2009	
Maximum authorized stock option grants as a % of the Company's share capital	5%	
Date of the Board of Directors' meeting	4 May 2011	4 May 2011
Number of stock options granted	105,000	105,000
of which to the Chairman and CEO	29,250	29,250
Number of options granted following adjustments	109,082	109,082
of which to the Chairman and CEO following adjustments	30,386	30,386
Number of outstanding options at 31 December 2018	10,000	32,728
Total by authorization	660,000, *i.e.*, 1% of the share capital at the date of the annual general meeting	
Vesting period [(1)]	2 years	4 years
Holding period [(2)]	2 years	-
Expiry date	4 May 2019	4 May 2019
Exercise price *(in euros)*	68.48	68.48
Exercise price *(in euros)* following adjustments	65.92	65.92
Performance conditions (other than the exercise price)	2011 ROCE	2011/2014 average EBITDA margin
Vesting rate	100%	100%

(1) Provided that the grantee is still employed by the Group when the options are exercised.
(2) From end of vesting period.

CORPORATE SOCIAL RESPONSIBILITY

The different parts constituting the annual financial report are identified in the table of contents by the pictogram AFR

4

4.1 ARKEMA'S CORPORATE SOCIAL RESPONSIBILITY (CSR) APPROACH

Arkema aims to generate sustainable and responsible growth for its businesses and to meet societal and environmental challenges by providing its customers with sustainable and innovative solutions that contribute to the Sustainable Development Goals defined by the United Nations.

The Group's CSR policy is developed in compliance with the main international texts and standards in force and more particularly with the International Bill of Human Rights, the International Labour Organization's (ILO) Declaration on Fundamental Principles and Rights at Work, the OECD Guidelines for Multinational Enterprises, the ten principles of the United Nations Global Compact, to which Arkema committed in 2014, and the Responsible Care® program, of which the Group has been a member since 2006.

To facilitate the understanding of its CSR approach among all stakeholders and ensure that its sustainable development culture is embedded and embraced across the organization, Arkema published a Social Commitment Charter in 2018, which has been approved by the Executive Committee. The charter is based on factors that have long been fundamental to Arkema, including a culture of safety, respect for the environment, innovation, employee issues and a culture of close dialogue. It sets out the three key commitments that structure the Group's CSR policy:

- offer a range of sustainable solutions driven by innovation;
- act as a responsible manufacturer; and
- foster open dialogue and close relations with stakeholders.

3 CSR COMMITMENTS

Deliver **sustainable solutions** driven by **innovation**

- **Solutions that address societal challenges**
- **Innovation at the heart of the activities**
- **Product stewardship**

Manage our activities as a **responsible manufacturer**

- **Safety of people and processes**
- **Health**
- **Environmental footprint reduction**

Cultivate an **open dialogue** and **close relations** with our **stakeholders**

- **Ethics**
- **Human rights**
- **Employee development**
- **Responsible value chain**
- **Corporate citizenship**

As an extension of its Social Commitment Charter, Arkema also created or updated its policies in support of these three commitments during the year. These include its Innovation Policy, its Health, Safety, Environment and Quality Policy (which replaced the existing HSEQ Charter), its Human Rights Policy and its Anti-Corruption Charter. The Group also has a Code of Conduct and Business Ethics, a Code of Conduct for Suppliers, a charter for the promotion and respect of the International Labour Organization's conventions, an energy policy, a water policy, a policy on conflict minerals, and a policy on the use of Group products for medical applications.

These charters and policies are applied across the Group and all of its subsidiaries.

4.1.1 Description of key impacts, risks, and opportunities

Like all companies, through its activities, Arkema interacts with its social environment. The identification and analysis of the Group's impact on its employee and social environment are part of its sustainable development process in order to mitigate the negative effects and accentuate the positive effects of the Group's actions, both for Arkema itself and for its stakeholders.

Arkema has therefore been engaged for many years in a continuous process of reducing the main risks associated with its activities, particularly those relating to safety and the environment (described in section 2.1 of this document). At the same time, thanks to its capacity for innovation and its expertise, Arkema develops new products and solutions that provide a wide range of opportunities to contribute to meeting the challenges of sustainable development (for additional detail, see section 1.1.2 of this document).

The Sustainable Development Goals (SDGs) defined by the United Nations Organisation set out the economic, social and environmental challenges facing our world today. Arkema's sustainable development initiatives are underpinned by these SDGs. Based on the expectations expressed by stakeholders, the Group's activities and the three commitments structuring its CSR policy, Arkema has mapped its contribution to the SDGs by identifying the extent of its commitments and actions with reference to the targets set for each of them. The aim of these actions is to mitigate social risks and to foster opportunities that contribute to the development of sustainable solutions.

	1 No poverty	2 Zero hunger	3 Good health and well-being	4 Quality education	5 Gender equality	6 Clean water and sanitation	7 Affordable and clean energy	8 Decent work and economic growth	9 Industry, innovation and infrastructure	10 Reduced inequalities	11 Sustainable cities and communities	12 Responsible consumption and production	13 Climate action	14 Life below water	15 Life on land	16 Peace, justice and strong institutions	17 Partnerships for the goals
Sustainable solutions		2.1 2.3 2.4	3.8			6.1 6.2 6.3 6.4	7.2 7.3		9.1 9.4 9.5		11.1 11.2	12.2 12.3 12.4 12.5	13.1	14.1	15.1 15.5		17.17
Responsible manufacturer			3.5 3.6 3.9	4.3 4.4 4.5		6.3 6.4	7.2 7.3		9.4			12.4 12.5	13.1 13.3	14.1 14.2	15.5		17.14
Open dialogue	1.5		3.5 3.6 3.9	4.3 4.4 4.5 4.7	5.5			8.4 8.5 8.7 8.8		10.4		12.6				16.5	17.14

- *Strategic contribution (through strategic objectives or programs)*
- *Direct contribution (resulting from voluntary initiatives)*
- *Indirect contribution (resulting from the Group's activities)*

The strategic contribution to the SDGs that relate to Arkema's sustainable solutions commitment is demonstrated by the Group's choice of the six strategic innovation platforms presented in section 1.1.2 of this document. The strategic contributions to the SDGs relating to its responsible manufacturer and open dialogue commitments are illustrated by the targets set for 2025, which are presented in section 4.1.6 of this chapter.

Consistent with its social commitment, Arkema develops buy-in of the SDGs across all its business and interactively with its value chain. As part of its commitment to responsibly manage its solutions portfolio, the Group began a systematic evaluation in 2018, factoring in contributions to the SDGs. This process is described in section 4.2 of this document, which focuses on the Group's sustainable solutions.

4.1.2 Consolidated non-financial information statement

In compliance with article L. 225-102-1 of the French Commercial Code (*Code de commerce*), Arkema takes into account the social and environmental consequences of its activities (those of the Company and of all its subsidiaries), as well their impact in terms of human rights and the fight against corruption and tax evasion.

The Group's business model is described in the 'Profile, ambition and strategy' section of this document.

The identification and review of the main risks associated with its activities are based on a number of sources: the general risks listed in the international reference documents cited in section 4.1.1 of this chapter; the risks targeted by the Responsible Care® program, which are specific to the chemicals industry; feedback from the Group's own experience; incidents that have occurred at companies with similar activities or scope; the material topics expressed by stakeholders during the materiality assessment presented in section 4.1.5 of this chapter; and the Group's duty of care plan. The risk identification and review process is carried out using a collaborative approach involving the Sustainable Development, Human Resources, Health, Safety and Environment, Legal Affairs, Procurement, and Internal Audit and Internal Control departments. The main non-financial risks are included in the risk map presented in chapter 2 of this document and are reviewed by the Risk Review Committee, in line with the risk management procedure described in section 2.2 of this document.

The main non-financial risks identified by the Group in the areas mentioned above are presented in this chapter, along with the due diligence procedures and policies implemented to prevent, identify and mitigate those risks and the outcomes of those policies in the form of performance indicators.

The main risks are:

- the risk of industrial accident liable to have social or environmental consequences;
- the risk of exposure to chemicals, whether involving Group or subcontractor employees, customers, end users or local residents;
- the risk of pollution and the risk of contributing to climate change, whether through Arkema's own activities or those of its upstream value chain or through the use of its products; and
- the risk of losing the skills and expertise necessary to continuously meet business, technological, social and environmental expectations in a proactive manner.

In addition to the risks mentioned above, the Group monitors the following general risks, which are also presented in this chapter: ethics and compliance risks, including those relating to the fight against corruption, the risk of human rights violations, and the risk of poor social and environmental performances by suppliers or subcontractors.

The Group's governance of CSR issues is described in section 4.1.4 of this chapter.

The non-financial information statement for the year ended 31 December 2018, which includes all the CSR performance indicators mentioned in this chapter, was reviewed by the independent third-party auditor, as indicated in its limited assurance statement in section 4.5 of this chapter.

In compliance with article R. 225-105-1 III of the French Commercial Code, reported non-financial information is published on the Group's website at the following address: https://www.arkema.com/en/social-responsibility.

CROSS-REFERENCE TABLE FOR THE NON-FINANCIAL INFORMATION STATEMENT

Articles L. 225-102-1 and R. 225-105 of the French Commercial Code *(Code de commerce)*	Sections in this document
Company business model	Profile, ambition and strategy
Description of the main risks involved in the way the Company takes into account the social and environmental consequences of its activities as regards human rights, and avoidance of corruption and tax evasion	2.2 (non-financial risks are tagged "CSR")
Social impact of the Company's activities	4.4.1
Environmental impact of the Company's activities	4.3.3
Impact of the Company's activities on human rights	4.1.3 and 4.4.3
Impact of the Company's activities on avoidance of corruption and tax evasion	4.4.2
Impact of the Company's activities and of the use of goods it produces and services it provides on climate change	4.3.3.2
Social commitments to sustainability, allowance made for social and environmental challenges in supplier and subcontractor relations, and measures taken regarding consumer health and safety	4.1 and sections and paragraphs indicated, 4.2.4 and 4.4.4

Articles L. 225-102-1 and R. 225-105 of the French Commercial Code *(Code de commerce)*	**Sections in this document**
Social commitments to the circular economy	4.3.3.3.4
Social commitments to combat food waste	Non-material risk for the Group
Social commitments to combat food insecurity	Non-material risk for the Group
Social commitments to animal wellbeing	4.2.4.3
Social commitments to fair, responsible and sustainable food	Non-material risk for the Group
Collective bargaining agreements signed within the Company and their impacts on its economic performance and on employee working conditions	4.4.1.4
Actions to counter discrimination and promote diversity	4.4.1.5
Measures to promote the recruitment of people with disabilities	4.4.1.5

4.1.3 Duty of care plan

Pursuant to the provisions of article L. 225-102-4 of the French Commercial Code, the Group has established and implemented a duty of care plan covering the activities of the Company and all the subsidiaries it controls. More specifically, Arkema has conducted an in-depth review of the consequences of its activities, and of those carried out by its suppliers and subcontractors that relate to their business relationship with Arkema, in order to identify any serious risk of violations of human rights and fundamental freedoms, as well as any serious health, safety and environmental risks, so that, as part of a continuous improvement approach, the Group can introduce or supplement the reasonable care measures necessary to prevent such risks or mitigate their impact.

MAPPING OF SERIOUS RISKS

The identification and review of these risks was carried out using a collaborative approach involving the Sustainable Development, Human Resources, Health, Safety and Environment, Legal Affairs, Procurement, and Internal Audit and Internal Control departments. This process resulted in a risk map that was presented to the Risk Review Committee in line with the risk management procedure described in section 2.2 of this document.

The methods for managing these risks and monitoring the effectiveness of the measures undertaken are different, depending on whether the risks relate to the Group's activities or those of its suppliers and subcontractors.

RISK MANAGEMENT AND EFFECTIVENESS MONITORING FOR RISKS RELATING TO THE GROUP'S ACTIVITIES

The identification and review of these risks are based on deductive analyses, internal feedback, incidents that have occurred at companies with similar activities or scope, and general risks listed in international reference documents. Risk assessments are updated regularly to take into account lessons learned, advances in preventing risks and mitigating their impact, and any emerging risks deemed relevant. Stakeholder expectations, particularly the main issues identified in the materiality assessment presented in section 4.1.2 of this chapter, are taken into account in the duty of care plan. Similarly, the risks identified while drawing up the duty of care plan will be included in discussions with stakeholders during the next materiality assessment, which is expected to be carried out in 2019.

Risks are reviewed in light of a combination of factors that includes their impact and likelihood of occurrence and the level of control provided by existing prevention and management measures.

- Human rights and fundamental freedoms

  Respect for human rights is of the utmost importance to Arkema. The Group therefore makes every effort to prevent human rights violations against its employees, partners and other stakeholders and to remedy any violations that do occur.

  After reviewing internal feedback and the general risks presented in the International Labour Organization's Declaration on Fundamental Principles and Rights at Work and the International Bill of Human Rights, and assessing the impact, likelihood of occurrence and level of control that Arkema has over these issues, no risks of serious violations have been identified in this area.

  Given the importance that Arkema places on human rights and fundamental freedoms, the Group has nonetheless decided to make its commitments and management of the risks in this area clearer and more visible for all stakeholders. A Human Rights Policy was therefore issued by the Group in 2018 and is available both internally and externally. For further details, see section 4.4.3 of this chapter.

- Health and safety

  As a responsible manufacturer, Arkema places personal health and safety among its top priorities. This commitment is clearly expressed in its Health, Safety, Environment and Quality Policy. A harmonized approach, based on risk prevention, an integrated management system and the dissemination of a health and safety culture, has existed within the Group for many years and is managed centrally.

  The main risks of serious harm to personal health and safety are:

  - the social and environmental consequences arising from industrial accidents or acts of malice. Accident risks are described in section 2.1.1 of this document. The management system for these risks is described in detail in sections 4.3.1 and 4.3.2 of this chapter and includes risk prevention measures, as well as measures for mitigating impacts in the event of an incident or accident.

    The effectiveness of the measures undertaken is monitored using numerous indicators, including the total recordable injury rate per million hours worked (TRIR) and the process safety event rate per million hours worked (PSER). In 2018, the TRIR, including accidents involving Group and subcontractor employees, was 1.3, a significant improvement on previous years' figures, which were already indicative of very good performance. The PSER, an indicator introduced in 2018, was 4.4. For further details, see section 4.3.2 of this chapter;

  - exposure to substances that are toxic or hazardous to human health, whether involving Group or subcontractor employees, customers or people living near Group facilities, which is described in section 2.1.1 of this document. The management system for health and safety risks, which is described in detail in sections 4.3.1 and 4.3.3 of this chapter, includes risk prevention measures, as well as measures for mitigating impacts in the event of an incident or accident. In addition, product stewardship, including the transparency and availability of product information, is presented in sections 4.2.4 and 4.3.2 of this chapter.

    The number of occupational illnesses related to exposure to chemicals is one of the indicators for monitoring the effectiveness of prevention measures over the long term. In 2018, 66 cases of occupational illness were reported Group-wide. Details on occupational illnesses are given in section 4.3.2.2.4 of this chapter.

- Environment

  As a responsible manufacturer, Arkema places environmental risk management among its top priorities. This commitment is clearly expressed in its Health, Safety, Environment and Quality Policy.

  A harmonized approach, based on the vision set out in this policy, has existed within the Group for many years and is managed centrally.

  The main risk of serious damage to the environment is the pollution of air, water and soil, which is described in section 2.1.1 of this document. The management system for environmental risks is described in detail in sections 4.3.1 and 4.3.3 of this chapter and includes risk prevention measures, as well as measures for mitigating impacts in the event of an incident or accident, or in the case of legacy pollution. The effectiveness of the measures undertaken is monitored via numerous indicators, including two strategic, intensive Environmental Footprint Performance Indicators (EFPIs) for which targets have been set for 2025. One relates to the amount of volatile organic compounds (VOCs) released into the air (VOC EFPI). In 2018, the VOC EFPI was 0.62, well down on the 2017 figure and better than the 0.67 target set for 2025. The second relates to chemical oxygen demand (COD) in effluent discharges (COD EFPI). In 2018, the COD EFPI was 0.59, also well below the 2017 figure and in line with the 0.60 target set for 2025. For further details, see section 4.3.3 of this chapter. The results confirm the validity of the Group's programs and initiatives on reducing pollution risks.

  Arkema is also attentive to the issue of climate change, one of the major challenges facing society today. The Group's climate policy and its management are described in section 4.3.3.2 of this chapter and include measures aimed at reducing emissions. The effectiveness of the measures undertaken is monitored via two strategic, intensive EFPIs for which targets have been set for 2025. The first relates to greenhouse gas (GHG) emissions from operations at the Group's industrial sites (GHG EFPI). In 2018, the GHG EFPI was 0.46, well down on the 2017 figure and better than the 0.50 target set for 2025. For further details, see section 4.3.3.2.1 of this chapter. The second indicator measures net energy purchases (Energy EFPI), which reflects the consumption of energy whose production generates greenhouse gas emissions. In 2018, the Energy EFPI was 0.88, below the 2017 figure and on track with the 0.85 target set for 2025. For further details, see section 4.3.3.2.2 of this chapter. The improvement confirms Arkema's contribution to reducing greenhouse gas emissions. However, given the extent of the challenges related to climate change, the Group decided in 2018 to initiate a process for assessing its impact in relation to the Paris Agreement. The results of this process may lead the Group to strengthen its initiatives aimed at combating climate change.

RISK MANAGEMENT AND EFFECTIVENESS MONITORING FOR RISKS RELATING TO THE ACTIVITIES OF SUPPLIERS AND SUBCONTRACTORS WITH WHICH ARKEMA HAS ESTABLISHED BUSINESS RELATIONSHIPS

Arkema has a number of suppliers involved in various activities relating to the supply of raw materials, energy, or goods and services. These activities are liable to entail various kinds of risks. To select suppliers and subcontractors and develop their sense of responsibility with a view to reducing the risk of serious violations of human rights and fundamental freedoms, harm to personal health and safety, and damage to the environment, Arkema takes a harmonized approach, set out in detail in section 4.4.4 of this chapter.

The effectiveness of the measures undertaken is monitored in terms of the number of suppliers assessed and the scores obtained. In 2018, more than 1,400 suppliers were assessed, up from around 1,000 in 2017. During the year, CSR scores rose for 60% of suppliers whose assessments were updated.

Some of the Group's products use raw materials of vegetable origin. Where raw materials producers are farmers rather than companies, the management system outlined above is not applicable. For supplies of castor oil, the main bio-based raw material used by the Group, an initiative is in progress under the Pragati project, launched in 2016, on environmentally socially responsible sourcing, as described in section 4.4.4.3 of this chapter.

REMEDIATION PROCESS

In the event of a major accident involving health, safety or the environment, a crisis unit is set up in accordance with the Group procedure described in section 4.3.2.3 of this chapter.

For non-accidental incidents, the remediation process is organized on a case-by-case basis with representatives from the departments involved and a management team adapted to the specific situation. Details on remediation measures regarding biodiversity are given in section 4.3.3.4 of this chapter.

Procedures for regular assessment

The duty of care plan is reviewed – overall and with respect to its implementation – at least once a year. The review is led by the Sustainable Development department and involves representatives from the Human Resources, Health, Safety and Environment, Legal Affairs, Procurement, and Internal Audit and Internal Control departments. The progress made and proposals for action are presented to the CSR Steering Committee and then to the Risk Review Committee, which validates the duty of care plan before submission to the Executive Committee then to the Board of Directors.

As part of the monitoring of the implementation of the duty of care plan and the assessment of its effectiveness, the internal audit and control system may be modified, if necessary, to take into account any additional items identified. For further details on the risk management and internal control system, see section 2.2.3 of this document.

REPORT ON THE IMPLEMENTATION OF THE DUTY OF CARE PLAN

For risks liable to be entailed by the Group's activities, the following conclusions were drawn from the implementation of the duty of care plan:

- significant change is not necessary for the health, safety and environment management system, which is considered to meet duty of care requirements;
- judging from the main indicators, continuous progress initiatives appear to be effective, and should be continued in order to achieve the strategic goals the Group has set for 2025 on the following points:
  - total recordable injury rate (TRIR) < 1.2 and process safety event rate (PSER) < 3,
  - environmental impact, in particular for the four strategic EFPIs (VOC < 67%, DOC < 60%, GHG < 50% and Energy < 85%);
- no risks were identified of serious violations to human rights or fundamental freedoms, or in labor or business relations. Initiatives are nevertheless under way in this area. In 2019, for example, the Group plans to continue the roll-out and personnel buy-in of the Human Rights Policy drawn up in 2018.

Concerning risks relating to the activities of suppliers and subcontractors, the programs under way meet duty of care expectations. These programs are being stepped up in 2019:

- extended reach for the Together for Sustainability program, with special focus on sensitive suppliers and subcontractors;
- continuation of the Pragati project on castor bean production, and definition of future orientations with a view to extending this initiative.

In addition, a whistleblowing system introduced as part of the Group's compliance with the French Sapin II Law also meets the requirements of the law on duty of care. For further details, see section 4.4.2.3 of this chapter.

4.1.4 Participants in the CSR process

To ensure that the social, environmental and business aspects of Arkema's operations are managed consistently and in the interests of all stakeholders, the Group's CSR commitment is led by the Chairman and Chief Executive Officer of the Company and the Group Executive Committee. The Group's commitment to the United Nations Global Compact is renewed each year via its annual Communication on Progress, and in 2018, this commitment reached the GC Advanced level. Internally, environmental, social and ethics policies are validated by the Executive Committee members, who are responsible for their dissemination and application across the Group. The operational entities are responsible for the effective implementation of these policies.

To fulfill its ambitious CSR approach, the Group has created a Sustainable Development department, comprising the Product Safety and Environment department and the Sustainable Development team. It reports directly to the Industry Executive Vice-President, who is a member of the Executive Committee.

In addition, a CSR Steering Committee guides and supports the Group's progress in the area of CSR. Its members include the Human Resources and Communication Executive Vice-President and a number of corporate Vice-Presidents, all of whom are actively involved in the CSR process, and it is chaired by the Industry Executive Vice-President. It meets at least twice a year.

The Group's CSR ambition, the main risks and opportunities, the related potential initiatives and their monitoring, the performance indicators and the sustainable development targets are defined and validated by the Executive Committee and presented once a year to the Audit and Accounts Committee and the Board of Directors.

Arkema's governance of the CSR process is integrated into the Group's corporate governance. In particular, every year the Sustainable Development Vice-President reports to the Audit and Accounts Committee, presenting the scope of the CSR data audit and the findings of the independent third-party auditor. These findings appear in the auditor's opinion issued to the annual general meeting along with the Board of Directors' report, which also includes a variety of social and environmental information.

4.1.5 Stakeholders and materiality assessment

OPEN DIALOGUE

Consultation and open dialogue with internal and external stakeholders is a prerequisite for understanding their expectations, building relationships based on trust and cooperation, reducing social risks and creating value for all.

The following table summarizes the Group's dialogue with its main stakeholders.

Stakeholder	Context and purpose of dialogue	Form of dialogue
Customers	Business relationship and collaboration aimed at meeting the current and future needs of customers and end users	Arkema establishes ongoing dialogue with its customers at various levels of the organization. To increase the value added created, the Group capitalizes in particular on: • dedicated management of global key accounts as part of a commercial excellence program; • joint innovation programs with customers, including lifecycle analysis if required; • development of new digital solutions that increase value added for customers and partners. For further details, see the section on Commercial excellence in Profile, ambition and strategy.
Suppliers	Business relationship and collaboration aimed at meeting the current and future needs of the Group and its customers	Arkema favors suppliers that have a global presence (Europe, Americas and Asia), are competitive and innovative (including in digital technology), and actively deploy a CSR policy. Arkema maintains open dialogue with its suppliers at various levels of the organization so that they support the Group in its developments over the short- and long-term. For further details, see section 4.4.4 of this chapter.
Research partners	Technology partnerships aimed at strengthening the Group's innovation performance by providing access to additional skills and discoveries that can drive breakthrough innovations	Arkema develops a diverse range of partnerships in various forms, including with academic institutions and industrial companies or as part of national or international cooperation efforts. Partnerships such as those involving the Group's innovation platforms contribute to fulfilling the United Nations' Sustainable Development Goals (SDGs). For further details, see sections 1.1.2 and 1.1.5 of this document.
Financial community, shareholders and SRI rating agencies	Inform the market of the Group's results and main operations Improve understanding of the Group's activities, strategy and outlook among investors, analysts and individual shareholders through transparent information	• Results presentations; • Meetings with institutional investors and analysts; • Discussions with financial rating agencies; • Completing questionnaires and discussions with SRI rating agencies; and • Annual general meeting. For further details, see section 6.4 of this document.

Stakeholder	Context and purpose of dialogue	Form of dialogue
Employees and employee representative bodies	Dialogue with employee representative bodies and direct dialogue with employees	• Continuous social dialogue with employee representative bodies that goes beyond legal requirements and provides numerous opportunities for discussion and negotiation with a view to driving social progress; and • Consultation and dialogue with employees notably in the form of internal surveys. For further details, see section 4.4.1.4 of this chapter.
Neighboring communities	Neighbors and communities that interact locally with Group sites	The Common Ground® initiative described in section 4.4.4.5 of this chapter promotes local dialogue at each of the Group's sites.
Civil society and NGOs	Proactive and reactive dialogue	• Collaboration with NGOs on specific projects; • Discussions in relation to the materiality assessment; • Periodic meetings with the media; and • Responsible and transparent communication in the event of a crisis. For further details, see section 4.4.6 of this chapter.
Public authorities	Regular and occasional contact aimed at ensuring the responsible development of our activities	• Responding to periodic surveys; • Participation in various consultation and working groups; and • Occasional contact at various levels (departments and cabinets) on specific topics. For further details, see section 4.4.5 of this chapter.
Professional associations	Continuous contribution to defending the industry's interests *vis-à-vis* the public authorities and participation in identifying and disseminating best practices across the industry	Arkema participates actively in segment- or topic-specific working groups, commissions and statutory bodies within relevant associations and in the external initiatives carried out by such associations. For further details, see section 4.4.5 of this chapter.

MATERIALITY ASSESSMENT

In 2016, the Group conducted a formal process of exchange with stakeholders on CSR topics in the form of a materiality assessment. The resulting materiality map reveals a strong correlation between the materiality assessments of both internal and external stakeholders. It also enabled the Group to identify areas for improvement and set new strategic objectives.

The materiality assessment was carried out with the help of a third-party expert (Deloitte Sustainability Services). It was conducted in two phases, as follows:

1. A preparatory phase, during which key stakeholders were mapped and the 25 most material CSR topics were identified.

   Map of the key stakeholders

   The map covered internal stakeholders within the main corporate functions and representatives of the key regions in which the Group operates. In this way, the process involved representatives of subsidiaries, Business Lines, the production division and the Health, Safety and Environment department, as well as plant managers, purchasing managers, R&D representatives, corporate department representatives (finance, ethics and compliance, human resources, communication and institutional relations) and employee representative bodies.

   External stakeholders included customers, suppliers, research partners, investors, non-financial rating agencies, NGOs, the media, public authorities, and professional associations.

   Identified material CSR topics

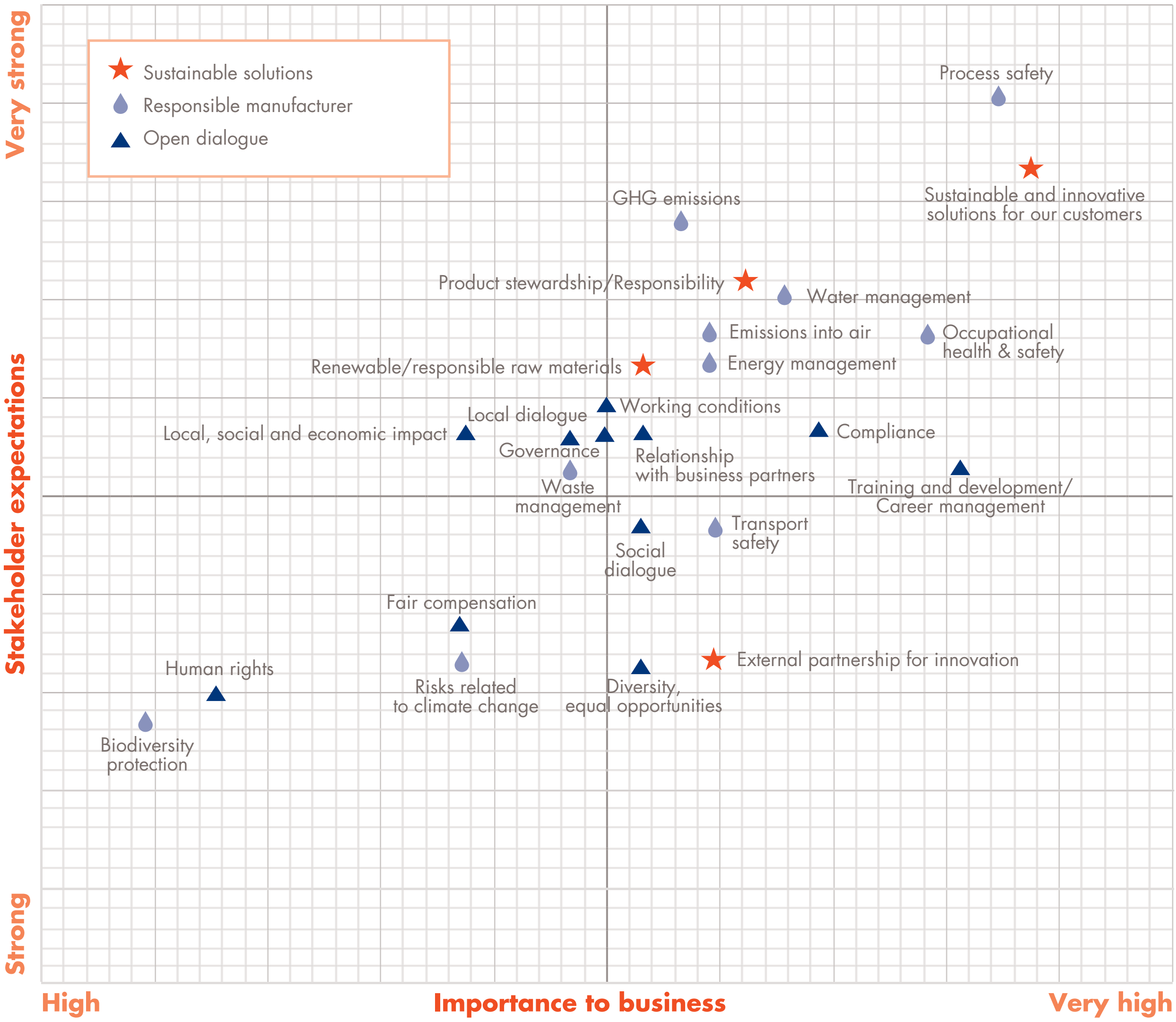
   The preliminary list of the 25 most material CSR topics was prepared based on the knowledge of the Group's CSR experts, recognized international standards, a detailed literature review and benchmarking against industry peers. The topics were consolidated into the following categories: innovation, safety, environment, employment and society.

2. A survey phase, consisting of in-depth interviews, in which each participating stakeholder validated and prioritized the identified CSR topics and also, in a few cases, suggested other topics to be addressed.

   The survey findings were analyzed in order to rank each topic according to two criteria, as shown in the matrix below:

   - its importance to the Group, as seen by internal stakeholders; and
   - its importance to external stakeholders, as measured by their expectations.

MATERIALITY MATRIX 2016



The material topics identified in the map have been classified into three levels of priority as follows:

	Sustainable solutions	Responsible manufacturer		Open dialogue	
Priority topics	• Sustainable and innovative solutions • Product stewardship and responsibility	• Health and safety • Process safety	• Resources management (water and energy)	• Diversity and equal opportunities	• Training and individual development
Important topics	• Renewable/ responsible raw materials	• Transport safety	• Climate change • Direct environmental impact of operations	• Compliance • Governance • Working conditions	• Relationships with business partners • Local dialogue
Permanent topics	• Open innovation		• Biodiversity protection	• Social dialogue • Fair compensation	• Human rights • Local, social and economic impact

In 2017, the Group pursued its stakeholder dialogue process by inviting representatives from each category of external stakeholders to provide feedback on the results of the materiality assessment and the priorities defined. The Group made a commitment to organize annual meetings in order to respond to this request.

In 2018, the discussions focused on Arkema's progress in addressing the issues identified as most material in the 2016 assessment and on its integration of the expectations expressed in 2017, especially as regards the sustainability and climate-change implications of the product portfolio.

To take into account changes to stakeholder expectations, a new materiality assessment will be carried out in 2019.

4.1.6 CSR key performance indicators

The following table summarizes Arkema's key CSR performance indicators. Tracking and analyzing these KPIs enables the Group to validate, year after year, the performance of its CSR process and upgrade it as required.

The Group's 2025 targets, which are set out in the table below, confirm its commitment to CSR. In 2018, the process safety event rate (PSER) was added to the strategic indicators, strengthening the Group's commitment to safety.

	2025 targets	2018	2017	2016
SUSTAINABLE SOLUTIONS				
Number of patent applications filed during the year relating to sustainable development		154	150	116
Percentage of sales from products made from renewable raw materials		9%	9%	10%
RESPONSIBLE MANUFACTURER				
Safety				
Total recordable injury rate (TRIR) [(1)]	<1.2	1.3	1.6	1.5
Process safety event rate (PSER) [(2)]	<3	4.4	3.9 [(3)]	N/A
Percentage of sites having implemented peer observation in the last three years	100%	64%	59%	56%
Percentage of AIMS audited sites	100%	74%	69%	63%
Environmental footprint *(in EFPI terms compared with 2012)*				
Greenhouse gas (GHG) emissions	0.50	0.46	0.52	0.60
Volatile organic compound (VOC) emissions	0.67	0.62	0.66	0.80
Chemical oxygen demand (COD)	0.60	0.59	0.70	0.78
Net energy purchases	0.85	0.88	0.89	0.92
OPEN DIALOGUE				
Employee development and diversity				
Percentage of women in senior management and executive positions	23% to 25%	21%	19%	18%
Percentage of non-French nationals in senior management and executive positions	42% to 45%	39%	37%	39%
Average number of training hours per employee		25	25	27
Corporate citizenship				
Percentage of plants taking part in the Common Ground® program		84%	78%	86%

(1) The TRIR includes injuries to both Group and subcontractor employees.

(2) The PSER is calculated in accordance with the criteria set out by the International Council of Chemical Associations (ICCA) and the European Chemical Industry Council (CEFIC).

(3) The method for calculating PSER was reviewed in 2018 (see section 4.3.2.3 of this chapter).

The Group's program on managing its solutions portfolio includes work on defining an indicator to measure its contribution to the UN Sustainable Development Goals, working on the basis of the materiality assessment, which placed sustainable and innovative solutions as a priority topic.

IMPROVEMENT PROCESS AND RECOGNITION

For several years now, Arkema has been strongly engaged in a process to improve its CSR performance, with the aim of being included in the Dow Jones Sustainability Index (DJSI). The Group's CSR approach is regularly assessed by external stakeholders, particularly customers and SRI rating agencies.

The very significantly improved ratings obtained in 2018 confirm the adequacy of Arkema's CSR approach and provide the Group with areas for improvement that will enable it to rank among the best performing companies in the industry.

ROBECOSAM	FTSE4Good	CDP	EcoVadis	Euronext Vigeo Eiris
Participation since 2015, with a significantly improved assessment, in line with the Group's target of joining the DJSI	Renewed every year since its initial inclusion in 2015	A- rating for Climate Change again in 2018, reflecting a very good performance, and B- rating for Water Security	Gold recognition level achieved in 2015 and renewed in 2017	Inclusion in the Europe 120 and Eurozone 120 indices since 2015

4.2 SUSTAINABLE SOLUTIONS

POSITION SUSTAINABLE SOLUTIONS AT THE HEART OF THE INNOVATION POLICY AND THE DEVELOPMENTOF THE PRODUCT RANGE

4.2.1 Management of the sustainable solutions portfolio

In a world faced with a multitude of economic, environmental and social challenges, Arkema aims to provide its customers with sustainable and innovative solutions that contribute to the Sustainable Development Goals (SDGs) defined by the United Nations Organisation. As indicated in section 4.1.4 of this chapter, product stewardship and the provision of sustainable and innovative solutions have been clearly confirmed as priorities in the materiality assessment.

Solutions that contribute to sustainable development are therefore central to Arkema's innovation policy and to the development of its product range. This opens up a vast array of opportunities, both for the Group and its partners.

Through its commercial excellence program, Arkema listens to its customers, enhancing its understanding of their needs with a view to developing innovative solutions adapted to their challenges and supporting them in their quest for sustainable performance.

Through its choice of research areas, its continuous development of employees' skills and its innovation structure and processes, Arkema endeavors to develop solutions with its partners that meet the global societal challenges of today and tomorrow.

Through product stewardship, Arkema also takes care to ensure that its products do not harm people's health or safety or damage the environment. These aspects are taken into account right from the product design stage.

In addition to complying with the regulations, which forms the foundation of its commitment, Arkema implements an approach aimed at continuously improving scientific knowledge so that it can adapt its range of solutions accordingly and provide its customers and end users with the information necessary for the appropriate use of its products.

FOCUS

Arkema rewarded by BMW for its innovation efforts

In 2018, Arkema received a sustainable development award from German automaker BMW for its investment in the development of high performance polymers made from castor oil, a renewable resource.

The importance of sustainable solutions is reflected in the Group's organization. For example, the Product Safety and Environment team is an integral part of the Sustainable Development department. The overall governance of sustainable development is presented in section 4.1.4 of this chapter.

To supplement its innovation and product stewardship processes, Arkema initiated a program in 2018 to systematically assess its portfolio of solutions in light of sustainability criteria. The program is presented in section 4.2.3 of this chapter.

4.2.2 Innovation

Innovation is a strategic pillar in Arkema's targeted growth strategy and a key component in its contribution to sustainable development. Innovation in manufacturing technologies, products and applications is a driving force behind the development of sustainable solutions consistent with the Group's social responsibility commitment.

Arkema's innovation strategy is outlined in section 1.1 of this document.

The number of sustainability-related patents filed reflects the Group's dynamic in this field.

	2018	2017	2016
Number of patent applications filed during the year relating to sustainable development	154	150	116

4.2.3 Management of the solutions portfolio

ASSESSMENT OF THE SOLUTIONS PORTFOLIO

To shift its product range more assertively toward sustainable solutions, Arkema has initiated a program to systematically assess its portfolio of solutions in light of sustainability criteria.

The methodology selected corresponds to that set out by the World Business Council for Sustainable Development (WBCSD) in its publication entitled "Chemical Industry Methodology for Portfolio Sustainability Assessments (PSA)". It takes into account all of the social, environmental and economic impacts.

Products are considered in the context of their applications and of the regions in which they are sold.

To the extent permitted by the information available, the assessment takes into account the entire value chain, including manufacturing processes, from raw materials to the product's end of life. It is carried out using three sets of criteria:

- basic requirements, which reflect (i) the Group's commitments relating to product responsibility in the area of health, safety and the environment, (ii) the principles of ethics and respect for human rights, and (iii) profitability factors;
- current market expectations in relation to sustainable solutions and the changes foreseeable over the medium and long term; and
- contribution to the UN Sustainable Development Goals (SDGs), using the market's standard solutions as a reference. The ten SDGs most relevant to Group activities were selected.In this way,

solutions are classified into different levels of contribution, making it easier to more effectively target actions that favor a sustainable sales portfolio.

In 2018, Arkema rolled out the program in pilot mode on a selection of solutions from three Business Lines that are representative of the Group's diverse range of activities: Acrylics, Technical Polymers and Bostik. The pilot phase will be followed by the program's gradual deployment across the product ranges of the various Business Lines, starting in 2019.

The Group intends to use these assessments of its portfolio of solutions to create an indicator that measures its contribution to the SDGs.

FOCUS

Kynar® PVDF: filtration membranes for drinking water with a doubled lifespan

Kynar® PVDF for ultrafiltration offers extreme chemical stability and excellent mechanical strength. The major innovation it brings with respect to alternatives on the market is that clogging is greatly reduced, which makes for reduced maintenance downtime. Kynar® PVDF membranes have a longer service life because filtration output returns close to initial levels after each rinse operation.

ECO-DESIGN

Reducing its environmental footprint is one of the Group's key commitments and an area in which stakeholder expectations are high. To meet those expectations, Arkema implements eco-design and circular economy techniques, as described in section 4.3.3.3.4 of this chapter.

	2018	2017	2016
Percentage of sales from products made from renewable raw materials	9%	9%	10%
Percentage of sales covered by a full life-cycle assessment	20%	20%	10%

4.2.4 Product stewardship

Arkema integrates health, safety and environmental protection into every product's design and throughout its life-cycle.

This product stewardship process, which in certain aspects exceeds regulatory requirements, engages stakeholders across the product chain, from raw material suppliers to end-customers.

The Group expresses its commitment to product stewardship in its Health, Safety, Environment and Quality Policy and by endorsing the International Council of Chemical Associations' (ICCA) Responsible Care® initiative.

Leveraging its organization and the scientific and regulatory expertise acquired over many years, Arkema ensures that product-specific HSE roadmaps are defined by country and are adapted to local conditions, thus helping to drive continuous improvement and deepen its knowledge of each product's features and conditions of use. In addition, the Group uses the Arkema Integrated Management System (AIMS) to manage HSE risks related to product modifications, particularly changes to product composition and manufacturing processes.

A training module on product stewardship has also been introduced internally and added to the training program for Business Line and Logistics teams.

4.2.4.1 REGULATORY COMPLIANCE

Regulatory compliance plays a key role in product safety for customers, the entire value chain and stakeholders.

In recent years, Arkema has notably deployed the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) and implemented the European Union's Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) regulations, which came into effect in 2007 to make the production and use of chemicals safer throughout the European chemicals industry.

Deployment of GHS

GHS is a major United Nations initiative designed to replace the various chemical classification and labeling standards used in different countries with a global system based on consistent criteria. The Group has deployed it in every participating country, in line with its implementation in local legislation.

In Europe, the GHS has been transposed into the Classification, Labeling and Packaging (CLP) regulation governing chemical products and mixtures. Arkema reassessed and classified all the substances contained in its product portfolio within the regulation's deadline and updated the related safety data sheets and labels.

In addition, Arkema has deployed the system in other countries, in particular in the United States, South Korea, China, Malaysia, Australia and Turkey, again within the regulatory timeframe. Roll-out is proceeding apace in the countries that are currently phasing in the GHS, such as Canada and Russia.

REACH implementation in Europe

REACH is a European regulation that aims to make in-depth changes in the way chemical substances are managed by improving the level of knowledge of these substances, analyzing their environmental and health risks and defining measures to manage the risks arising from their use or manufacture.

An advocate of the regulation's objectives since its inception, Arkema mobilized a team of more than 30 experts in toxicology, ecotoxicology and regulatory compliance – working both centrally within the Product Safety and Environment department as well as within the Business Lines and corporate departments – to successfully complete the final phase of registration. In all, the Group will have registered 425 substances during the various phases of registration, and the total cost of the REACH regulation is expected to be around €65 million for the 2008-2020 period.

More particularly, Arkema has filed the following registrations with the European Chemicals Agency (ECHA):

	Number of substances	Substances for which Arkema is lead or sole registrant	Number of filings submitted to the ECHA	Filings accepted by the ECHA
2010 and 2013 deadlines	277	122	311	100%
2018 deadline	148	47	207	100%

When the stages of registration have been completed, research on chemical substances will continue in line with the REACH regulation to further improve knowledge of their properties and applications. The regulation represents a significant source of progress in the areas of risk management and the protection of people and the environment.

It fits perfectly with the product stewardship strategy deployed by Arkema, which has gone beyond the ECHA's demands by launching a project to improve its filings and by updating those filings in a proactive manner to take into account new data and changes to the guidelines.

Preventive updates designed to improve the filings accounted for around 40% of the Group's filings maintenance activity in 2018.

Management of REACH-defined substances of very high concern (SVHC)

The European Union introduced its Community Rolling Action Plan (CoRAP) right from the first phase of registration, in order to be able to identify the substances of most concern by 2025. Since 2012, 352 substances have or will be evaluated under the plan. Twenty-nine of the Group's substances have been listed in CoRAP and their state of advancement is as follows:

CoRAP	2012-2020	Evaluation completed	Additional information provided, awaiting conclusion	Additional information being acquired	Upcoming evaluation
Number of substances	29	5	8	9	7

Following evaluation, additional information may be requested to determine if the risks are effectively managed. This could eventually lead to proposed pan-European risk management measures, such as restrictions, the identification of substances of very high concern or other initiatives outside the REACH remit.

Arkema has put in place a dedicated process to track the REACH-defined SVHCs that are used in its productions or placed on the market. It was designed in response to the REACH substance authorization process, which has two phases:

- the first consists in identifying substances that could have potential negative impacts on human health or the environment. Once so designated, these "substances of very high concern" are added to a list of substances that may be subject to prior authorization for their specific use (Annex XIV); and
- the second phase aims to ensure that the risks from the use of these SVHCs are adequately managed and that the substances themselves are being gradually replaced by appropriate alternatives. These substances may not be placed on the market or used after a designated date unless an authorization is granted (or waived) for their specific use.

As soon as the authorities propose that a substance be listed as an SVHC, Arkema responds to the public hearings organized by the ECHA for substances whose use(s) may be subject to authorization.

In cases where these substances finally qualify as SVHCs and are included in the candidate list, a review is conducted to determine the most appropriate response, such as assessing alternative substances for the intended uses, applying for authorization when the substance is listed in Annex XIV, or converting the production unit and phasing out production.

ANALYSIS OF THE GROUP'S SVHCs

Substances of very high concern	**SVHCs contained in products placed on the market**	**Of which SVHCs contained in raw materials**
SVHCs subject to REACH authorization	9	8
SVHCs on the REACH candidate list	41	37

In addition to Europe, the table above includes data for Asia and the United States, as well as for Bostik.

In November 2015, Arkema filed an application with the ECHA for the autorization of sodium dichromate, used as a processing aid at the Jarrie plant in France, while waiting for an alternative solution to be found. The request was accepted by the European Commission on 29 January 2018 for a period of 12 years.

At the end of 2018, the industry candidate list contained 191 substances, including (i) hydrazine produced at the plant in Lannemezan, France, (ii) 2-imidazolidinethione (ETU) produced by MLPC, and (iii) nonylphenol ethoxylates (NPE) produced by the surfactants and additives business.

On 13 June 2017, NPE was added to the list of substances that require authorization. In 2018, Arkema decided not to maintain these product lines in the applications subject to authorization.

REACH's third component is the restriction procedure, which is intended to restrict or prohibit a substance's production, marketing or use.

The restriction relating to perfluorooctanoic acid (PFOA) derivatives came into effect on 13 June 2017. However, the Group has not been affected by the measure because it voluntarily replaced these substances in its fluoropolymer production process back in January 2016, before the measure came into effect in Europe.

Previously recommended for authorization, cobalt chloride is now recommended for restriction, after an analysis of the most effective risk management option. The proposal prepared by the ECHA was published in October 2018 but has not yet entered the phase of analysis by the Risk Assessment Committee (RAC). The Group, which uses the substance as a processing aid at the Jarrie plant in France, is analyzing the impact and exploring various solutions, including replacement.

Compliance with other legislation

Outside Europe, Arkema markets its chemicals in accordance with national and regional regulations, as applicable. Due to its history and global presence, some of these products are already notified in many inventories. Should a need arise for a new product notification, applications can be filed in a timely manner thanks to the extensive database Arkema maintains on the characteristics of its products.

In particular, since 2015, this process has made it possible to respond to the three new REACH-like regulations that have been introduced in Asia (South Korea, Taiwan and Turkey). For example, Arkema has completed phase I registration of substances in Taiwan and has been submitting annual reports to the Korean authorities since 2016.

Arkema has also joined consortia formed to jointly register substances brought to market in South Korea, in accordance with article 15 of the Act on the Registration and Evaluation of Chemical Substances (ARECS), and registered nine substances before the first deadline of June 2018.

The Group is now preparing for upcoming pre-registration/registration deadlines in South Korea and Turkey.

Following the publication of rules aimed at reforming the Toxic Substances Control Act (TSCA) Chemical Substance Inventory in the United States, the Group notified the US authorities of active substances in its portfolio in February 2018.

On a more specific note, the Group does not manufacture any persistent organic pollutants (POPs).

The Group complies with regulations on genetically modified organisms (GMOs) in different countries and regions. The great majority of raw materials of vegetable origin used by Arkema is guaranteed GMO-free, and this can be traced if customers so require.

Lastly, the Group has a policy of restricting the use of its products in medical applications solely to temporary implants (less than 30 days). To assist the Business Lines in their choices, Arkema has set up medical applications assessment committees in order to assess the compliance of the intended products with prevailing laws and regulations.

4.2.4.2 PRODUCT INFORMATION

Arkema relies on an in-house team of expert toxicologists and ecotoxicologists which conducts product hazard studies and works closely with regulatory experts to assess risks in normal conditions of use. The findings are shared across the Group and externally in various forms, including Safety Data Sheets, labeling and Global Product Strategy (GPS) Safety Summaries.

Safety Data Sheets (SDSs)

In many countries, Arkema describes its product characteristics and conditions of use in Safety Data Sheets (SDSs), which are required to market chemicals classified as hazardous to human health or the environment. They are prepared in some forty languages based on a global database comprising the composition of every product and its toxicological, ecotoxicological and physicochemical data, thereby ensuring consistent information in every market. Arkema issues SDSs in accordance with regulatory requirements and posts them on the Group website or the online QuickFDS platform. As part of the product stewardship process, Arkema exceeds regulatory obligations by issuing SDSs even for products that are not classified as hazardous and by providing users with an emergency hotline available 24/7.

In Europe, the Group's organization and IT infrastructure have made it possible to issue extended "SDSs", the latest REACH compliant format, which improve risk management by including exposure scenarios for each identified use.

Labeling

Arkema has also developed systems to print labels with a consistent classification, regardless of the country in which the product is manufactured or marketed.

In addition, efficient IT systems enable Arkema to prepare compliance documents and align them as needed with the latest formats and data, notably when the GHS standardized classification and labeling system is introduced in a new country.

Poison control centers

The Classification, Labeling and Packaging (CLP) regulation makes alignment with the GHS a legal obligation throughout the European Union. In addition, under the regulation, companies that put hazardous mixtures on the market must provide information about those mixtures to the bodies appointed by their country. The appointed bodies make the information available to poison control centers so that they can provide medical advice rapidly in an emergency situation.

Under the new provisions of the CLP regulation, which came into effect in March 2017, these companies will be required over time to:

- use a harmonized format for the transmission of information via a portal hosted by the European Chemicals Agency (ECHA). This EU-wide format will gradually replace national requirements for the transmission of information; and
- generate a unique formula identifier (UFI) for each formula, which must be included on the product label. This establishes an unambiguous link between the product placed on the market and the information relating to the mixture, enabling accurate and rapid identification of the product's formula. Accurate identification is essential in order to provide the appropriate medical advice in an emergency.

With the help of its teams and its IT infrastructure, the Group has taken the measures necessary to meet the upcoming deadlines, the first of which is 1 January 2020.

Global Product Strategy (GPS)

Arkema remains actively engaged in the Global Product Strategy (GPS) program, which is designed to support the deployment of safer, more efficient chemicals management practices. As part of this process, a dedicated web page has been created and Safety Summaries are regularly posted on the ICCA and corporate websites as and when REACH registration applications are filed. To date, the Group has already published 145 GPS Safety Summaries, describing the intrinsic properties of the substances marketed by the Group, their potential risks for human health and the environment and the recommended ways of managing these risks effectively. However, the Europe-wide ECHA database contains an equivalent level of data, in the form of infocards and brief profiles, and has the advantage of being continuously updated. The European Chemical Industry Council (CEFIC) is therefore reviewing the utility of continuing to draw up GPS Safety Summaries.

4.2.4.3 ANIMAL TESTING

Given its business portfolio, Arkema neither conducts triage trials on substances derived from its research nor participates in toxicology research projects that could involve the use of laboratory animals.

The Group always conducts in-depth analyses of data in existing literature, thanks to constant tracking of information on Group substances, in order to use all of the available public information.

The Group does not conduct toxicology studies on vertebrate animals other than those required by the authorities and only after an in-depth analysis and application of up-to-date existing public information on the substances in question. The necessary studies are contracted to outside laboratories which are subject to oversight by the relevant ethics committees.

As required by REACH, the Group applies, whenever possible, the rules for waiving standard testing when such tests are not justified (due to the absence of exposure) or when alternative methods can be used.

In addition, Arkema participates in the work of FRANCOPA, a French platform dedicated to the development, validation and dissemination of alternative animal testing methods, using the 3Rs (reduction, refinement, replacement).

4.3 RESPONSIBLE MANUFACTURER

As part of its commitment to societal issues described in section 4.1 of this chapter, Arkema operates as a responsible manufacturer and resolutely observes a policy of continuous improvement and operational excellence. Its goal is to rank among the leading chemical producers in terms of safety performance and to reduce the environmental footprint of its activities.

4.3.1 Health, safety and environmental management

Safety and protecting health and the environment are core priorities in the management of Arkema's business and manufacturing operations, and a major focus of its CSR policy. This focus is shown by the Group's involvement in the Responsible Care® program, an initiative undertaken by the chemical industry to responsibly manage its operations and products, based on a continuous improvement process.

The Group's safety and environment policy is structured around three areas: prevention of risks (related to safety, the environment and pollution), management guidelines, and a culture of safety and sustainability. It reflects prevailing legislation and the Group's own requirements, formally defined in a Health, Safety, Environment and Quality Policy (implemented in 2018 to replace the existing HSEQ Charter) and in a global standard: the Health, Safety and Environment (HSE) manual. This policy, which confirms the responsible manufacturer commitment expressed in the Group's Social Commitment Charter described in section 4.1 of this chapter, and this global standard form the basis of the HSE management systems for all Group entities.

The materiality assessment performed in 2016 confirmed that personal and process safety, climate change and resource management were among the key aspects of the Group's CSR approach.

The management system for this policy is handled globally by the Group Safety and Environment department and its experts in industrial hygiene, safety and the environment. The department head reports to the Industry Executive Vice-President, who is an Executive Committee member, and makes a monthly presentation to the Executive Committee to keep it informed of the progress made in its programs and any significant events.

Implementation of the Health, Safety, Environment and Quality Policy is handled by the operating teams in each region and Business Line.

4.3.1.1 RISK PREVENTION

Whether in the area of security, health, safety or the environment, risk prevention is everyone's responsibility. Arkema believes that all occupational accidents are preventable and that everyone has a role and a responsibility in ensuring occupational health and safety and protecting the environment and neighboring communities.

In the area of process safety, Arkema is continuously improving its risk prevention and management practices.

These measures are presented in detail in sections 4.3.2.2 and 4.3.2.3 of this chapter.

4.3.1.2 MANAGEMENT SYSTEMS AND AUDITS

The effective implementation of the Group's safety and environmental policies is regularly audited, with a focus on measuring progress and harmonizing practices. These audits are an important management practice.

To ensure a highly efficient inspection and control process, all of the Group-led safety, environment and quality audits have been consolidated into a single audit, known as the Arkema Integrated Management System (AIMS). It is based on all of the Group's standards, both proprietary and endorsed, such as ISO 9001, ISO 14001, OHSAS 18001 and ISO 50001. This "all-in-one" approach has the dual benefit of being aligned with the Group's corporate culture and ensuring consistency across all its safety, environment and quality management initiatives. AIMS audits are conducted every three years by teams comprising Arkema employees and representatives from an independent third-party auditor, with follow-up audits every year.

The 2025 target is for every facility to have been AIMS-audited within the past three years.

	2018	2017	2016
% of facilities AIMS-audited over the past three years	74	69	63

The increase in the percentage of AIMS-audited facilities over the last three years illustrates the continued deployment of this program, in particular at the Bostik plants included in early 2015.

Many facilities are audited simultaneously according to the AIMS standard and a variety of international standards, to earn or renew external certification, depending on their particular situation.

The number of sites certified in this way over the last three years is presented in the following table and attests in 2018, as for previous years, to the Group's ongoing efforts in these areas:

Number of units certified according to each standard	2018	2017	2016
ISO 9001 (quality)	154	150	130
ISO 14001 or RCMS (environment)	86	84	72
OHSAS 18001 and ISO 45001 (health and safety)	85	74	66
ISO 50001 (energy)	30	29	21

The migration from OHSAS 18001 to ISO 45001 was initiated at the end of 2018 and will continue until early 2021.

53% of Group facilities have been OHSAS 18001 certified in Europe, 48% in America and 58% in Asia, representing 47% of Arkema's workforce.

Depending on local conditions, certain facilities have been certified to standards other than ISO 14001, such as the Responsible Care® Management System (RCMS) in the United States.

	2018	2017	2016
% of facilities ISO 14001 or RCMS-certified	54	52	52

The ISO 14001 or, in the United States, RCMS certification systems, require each production facility to identify its environmental impact in terms of water, air (including greenhouse gas emissions), waste, noise, odors, soil, use of resources and logistics flows, and then to define an action plan with priority areas for improvement. Periodic environmental assessments enable the facilities to measure progress and determine new improvement targets.

In addition, the Group performs a large number of non-AIMS audits every year, including:

- operational safety audits: construction site inspections, pre-start-up reviews, and operational safety audits in areas such as mechanical integrity and explosive atmospheres;
- process safety audits, including fire safety audits, post-incident audits, risk analysis reviews and specific reviews of the management of safety instrumentation;

- regulatory hazardous materials transportation audits;
- supplier and supply chain audits: transportation companies and warehouses are inspected and assessed. These audits are performed in addition to third-party audits, such as the Safety & Quality Assessment System for overland transportation, the Chemical Distribution Institute for maritime shipping, and the European Barge Inspection Scheme for river shipping. A certain amount of packaging is also inspected;
- field safety audits led by plant employees to assess the safety culture and installation compliance on a continuous, sustainable basis. These assessments include task or process audits, short flash audits, scheduled general inspections and safety tours by management. They concern everyone working on the site, including Group and subcontractor employees, and are performed in every aspect of the site's operations, including production, logistics, maintenance, offices, construction sites and turnarounds;
- security audits; and
- environmental audits.

In addition to audits, teams from the Group Safety and Environment department (DSEG) lead safety support initiatives at facilities whose performance has fallen short of Group standards or which have reported a specific issue. DSEG experts share their findings of the facility's accident record and HSE activities with plant management, then discuss how to prepare, implement and follow up on the remedial action plans. In 2018 as in 2017, the DSEG continued to provide specific support to plants during their turnarounds and stepped up its participation in events organized by the Business Lines, plants (annual meetings with partner companies) and corporate departments (maintenance, R&D, etc.).

Another important tool in managing the deployment of the Group's safety process is feedback on material incidents. It consists in sharing experiences on relevant incidents so that ways can be found to avoid recurrence. Feedback takes place across the global organization, through various geographic, professional and technological networks. In the event of a material incident, the network issues a safety alert that enables other Group facilities that may encounter a similar incident to take corrective measures. The feedback process helps improve the Group's safety expertise and ensure the effectiveness of the deployed measures.

To harmonize the identification, assessment and analysis of environmental risks, in 2013 the Group rolled out a new methodology, with global application, while a dedicated IT system was deployed in Europe, the United States and Asia in 2016. In 2018, 75% of the Group's industrial sites received training in how to use the system and around 66% updated their environmental assessment in the system.

4.3.1.3 SAFETY AND ENVIRONMENTAL CULTURE

Instilling a culture of safety through employee training and development of hazard awareness

Behavior plays a critical role in managing and preventing risks. That is why a core aspect of the Group's safety process is the development of a common safety culture that raises everyone's awareness of his or her responsibility and the importance of his or her personal behavior. To develop a shared safety culture across the organization, the Group uses a variety of programs and initiatives, including:

- general training in health, safety and the environment for new hires;
- the "Safety in Action" and "Essentials" programs;
- field initiatives, such as peer observations, flash audits, scheduled general inspections, safety tours and field safety audits;
- dedicated training courses, such as SafeStart®, "Human and Organizational Safety Factors", "Safety Culture and Leadership", "Transporting Hazardous Substances" and "Crisis Management"; and
- the Arkema Safety Academy, which enables every employee to share the Group's safety challenges, policies and tools.

In addition, since 2017, the Group has been progressively integrating the lessons learned from neuroscience to improve accident prevention. These programs and initiatives are detailed in this chapter.

In 2018, safety training (1) totaled 193,274 hours (*i.e.*, 14 hours per year per employee trained), and the number of employees who attended at least one safety training session totaled 13,588 (73% of the Group headcount) (1).

In addition, 8,539 people (46% of the Group headcount) took e-learning courses on safety in 2018 (1).

Instilling an environmental culture through employee training and development of hazard awareness

Group employees are trained and made aware of the main characteristics of their plant, the real-world consequences of their actions, the operational management of all types of releases and emissions, the environmental impact of turnaround or start-up operations, and waste sorting.

At the 54% of Group facilities that earned ISO 14001 or, in the United States, RCMS certification in 2018, a dedicated environmental training program is offered after an environmental risk analysis has been performed in each workshop. At an increasing number of facilities, feedback on environmental incidents is being tracked in a common system for reporting incidents and following up corrective actions. The training program is regularly repeated to maintain employee awareness of the importance of critical parameters.

A communication campaign aimed specifically at fostering an environmental culture will be conducted across the Group in 2019.

Details on employee training and the new-hire induction process may be found in section 4.4.1.3 of this chapter, "Special professional training programs for employees". Environmental training totaled 15,795 hours in 2018, or an average of four hours per employee. In all, 3,919 employees, or 21% of the consolidated workforce, attended at least one environment-related course during the year (excluding e-learning) (1).

(1) In companies at least 50%-owned by the Group and employing more than 60 people.

4.3.2 Health and safety information

BEING A TOP QUARTILE PERFORMER IN SAFETY IN THE CHEMICAL INDUSTRY

4.3.2.1 SAFETY MANAGEMENT

As part of its societal engagement, the Group places the management of personal and environmental risks among its top priorities. Its approach to industrial safety takes into account the potential risks at the Company level but also for the environment and other stakeholders.

The main risks associated with the Group's activities relate to personal safety, exposure to chemicals and process safety. For more information on these risks, see section 2.1 of this document.

The due diligence procedures and policies implemented to prevent, identify and mitigate these risks and the outcomes of such policies in the form of performance indicators are described in detail below.

The Group's commitment to safety has been materialized in three targets for 2025, which reflect the Group's willingness to continuously improve its performance in this area.

2025 TARGETS

Reduce the total recordable injury rate (TRIR) to less than 1.2.

Reduce the process safety event rate (PSER) to less than 3.

Extend the peer observation program to every Group site *.

Audit every Group site * in accordance with the Arkema Integrated Management System (AIMS).

* *For newly acquired companies' sites, the roll-out of this programme takes place over a period of around three years.*

By setting this strategic TRIR objective for 2025, Arkema is contributing to UN Sustainable Development Goal 3: Good health and well-being.

4.3.2.2 EMPLOYEE HEALTH AND SAFETY

Arkema considers protecting the health and safety of its own employees and those of its subcontractors as a core value and believes that every occupational accident is preventable.

As part of a prevention and continuous improvement process, the Group is committed to ensuring a good working environment for everyone, in particular by analyzing workstation health and safety risks and studying accident typologies.

Regarding safety, the Group has the same level of expectation for subcontractors working on its industrial sites as for its employees. In particular, all of them systematically take part in awareness initiatives designed to develop a safety culture and in the Group's safety processes and programs. In addition, the injury rates for both employees and subcontractors are tracked as part of the safety performance management system.

Since the analysis of accident data shows the importance of human factors, Arkema has launched a series of programs designed to foster commitment to health and safety among all employees.

Another priority concerns the attenuation of arduous working conditions, with the deployment several years ago of a dedicated program comprising workstation ergonomics and other remedial actions. Workplace well-being and the quality of life at work are also important factors in protecting employee health.

4.3.2.2.1 Personal safety

The "Safety in Action" and "Essentials" programs

The "Safety in Action" and "Essentials" programs, which concern both Group employees and subcontractors working on Group sites, are deployed worldwide. "Safety in Action" is designed to promote and deepen everyone's safety culture, while the "Essentials" program defines a set of rules that must be applied without compromise in every situation.

FOCUS

Using digital technologies to improve safety

Security experts have identified new technologies as one of the key avenues for improving safety. To take advantage of this potential, Arkema has initiated an investigation into how new technologies can contribute to health and safety, in particular by conducting various trials, such as the use of connected tools in France, tablets for safety inspections in the United States and drones for maintenance inspections in China. It also intends to pursue its investigations into this topic over the long term.

Peer observation

Peer observation is aimed at raising risk awareness in ways that help to reduce the number of occupational accidents. It capitalizes on positive experiences and a joint search for solutions to improve practices. Using a structured observation process, each site implements the method taking into account its own specific features (risks and operations). Initially based on observations between employees with similar qualifications, the program has now been extended to allow all employees to observe each other while carrying out their duties.

Peer observation has now been introduced in all of the Group's Business Lines, except for the Bostik Business Line, which already has its own system that is scheduled to be harmonized at a later date.

As a result, in 2018, 64% of all Group sites had put in place peer observation practices to improve safety, versus 59% in 2017. The 2025 target is 100% of the Group's sites.

As part of this same process, Arkema has put in place a number of special programs, such as Smart Zone and SafeStart®:

- **Smart Zone: identifying and rectifying shortfalls**

Bostik has developed a monitoring system to identify in-field non-compliance or shortfalls against best safety practices. Employees detecting such an incident can record it in a "Smart Zone" table. After immediate corrective action is taken, further measures can be discussed between the employee and the Smart Zone table manager. Implementation of the corrective solution is tracked in the Smart Zone through to completion, for fast, effective incident follow-up.

- **SafeStart® to make safety everyone's business**

To encourage the shift from a compliance to a commitment-based safety culture, the Group has rolled out the SafeStart® initiative, which is based on observing oneself and other people to identify critical states, such as rushing, frustration, fatigue and complacency, that can lead to critical errors (eyes not on task, line of fire, mind not on task, loss of balance, traction or grip), which in turn transform minor risks into major ones. Techniques to reduce the incidence of critical errors in turn help to drive a continuous improvement in the prevention of accidents. All employees will be trained in the fundamentals of this approach by 2020.

Progressively integrating the lessons learned from neuroscience to improve accident prevention

Since 2017, the Group has initiated a review with a neuroscientist of the mechanisms associated with human error, particularly among experts (which most of the Group's employees are in their respective roles).

Program rollout has begun, furthering an understanding of behavioral approaches, and facilitating the adoption of safety tools and equipment by highlighting their utility.

Getting stakeholders involved in safety

In France, many entities organize Safety Days once or twice a year with their subcontractors, which are attended by local HSE employees, the Group contract manager and the contractor's sales manager. During these days, the Group is represented by local executives, business executives and, as applicable, representatives from the Group Procurement and Safety and Environment departments. These events provide an opportunity to share best occupational health and safety practices. Already well established in Europe, this approach is being rolled out across the Group.

In addition, a certain number of initiatives are carried out in order to obtain employee feedback:

- in China, an employee survey that includes a safety section is conducted every two years and the findings are integrated into site improvement plans;
- certain Business Lines, such as coating resins, carry out an annual employee satisfaction survey with a particular focus on safety; and
- in Europe, a survey including a safety section was carried out among all employees in 2018.

These surveys provide an overview of how committed employees really are to safety. In Europe, 97% of respondents said that "safety was always on their mind".

The Common Ground® initiative, presented in section 4.4.6 of this chapter, "Corporate citizenship and philanthropy", aims at developing constructive dialog with local communities.

Injury rates

The Group's safety performance ranks among the best in the global chemical industry, confirming the clear improvement dynamic underway for several years, driven largely by the deep involvement of every employee.

2025 TARGET

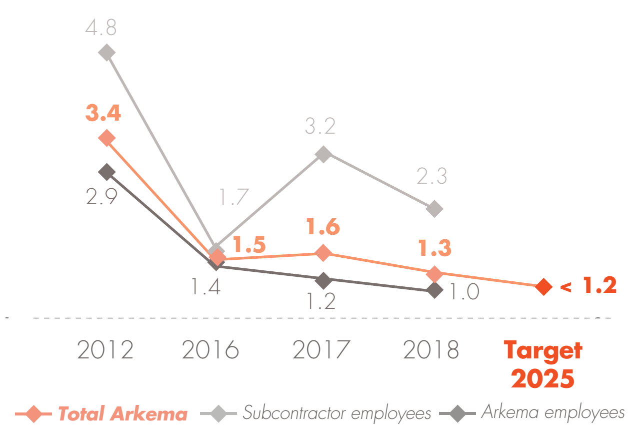
To further improve, the Group has set a target to achieve a total recordable injury rate per million hours worked (TRIR) of less than 1.2 by 2025.

The Group's safety performance saw a sharp rise in 2018, with TRIR of 1.3, down from 1.6 in 2017. This performance stems from excellent results for Group employees, with TRIR down to 1.0 in 2018 from 1.2 in 2017, and for subcontractor employees, with TRIR down to 2.3 in 2018 from 3.2 in 2017. These improvements owe much to the targeted action plans initiated in 2018.

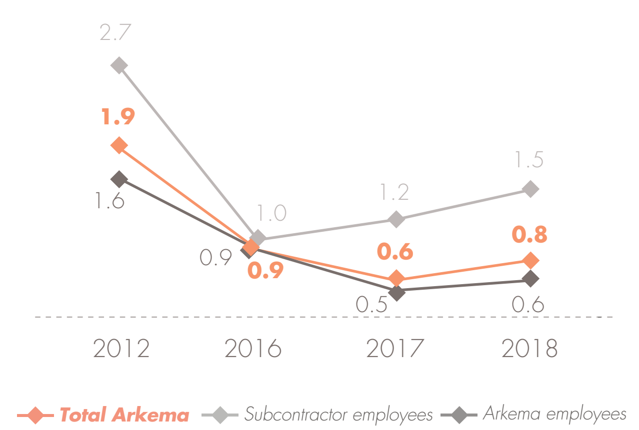
The overall lost-time injury rate (LTIR) showed a slight rise, to 0.8 in 2018 from 0.6 in 2017. This overall rise was weighted by lost-time injuries among subcontractor employees, with an LTIR of 1.5, compared to the virtually stable LTIR of 0.6 for Group employees. An average of 52 days were lost per injury in 2018 across all Group and subcontractor employees, stable compared with 50 in 2016. No fatal accidents have been recorded since 2013.

The following charts show consolidated injury rates for the 2016 to 2018 period, in number of injuries per million hours worked, calculated according to the methodology described in section 4.5 of this chapter. They also show data for 2012, the baseline year used to set the Group's long-term CSR targets.

TOTAL RECORDABLE INJURY RATE (TRIR) (1)



LOST-TIME INJURY RATE (LTIR) (1)



In 2018, a total of 34 Group employees were victims of reported injuries recorded in the TRIR for the year, of which 19 resulted in lost time, out of a total worldwide workforce of 20,010 people. The rate also reflected the 24 incidents involving subcontractor employees reported during the year, of which 16 were lost-time injuries. Analysis of the data shows a decrease in the number of potentially serious incidents, which account for a small proportion of the total. The Group remains set on further reducing this number, by means of a program on identification and analysis of potentially serious accidents. This will enable prevention measures to focus on these types of incidents as a first priority, thereby improving the effectiveness of prevention efforts.

4.3.2.2.2 Health at work

Arkema has also undertaken continuous improvement initiatives to prevent health risks and enhance employee well-being.

Protecting health at the workplace

To consolidate all of the workplace health and safety initiatives, the Group is developing a workplace risk assessment application, known as STARMAP, to prevent health and safety risks more effectively by capitalizing on globally managed data libraries and best practices. The application is being rolled out worldwide. At 31 December 2018, 48% of the Group's sites worldwide had entered their workplace risk assessment data into the STARMAP tool.

Integrating ergonomics and preventing arduous working conditions

Since 2012, the Group has undertaken a process to integrate ergonomics and prevent arduous working conditions.

In France, a new agreement on the prevention of arduous working conditions and the integration of ergonomics was signed in 2016 by all of the trade unions, following on from the previous one. In this context, numerous initiatives have contributed to improve working conditions, including the development of internal expertise through the implementation of a network of ergonomics correspondents and the integration of ergonomics into the industrial design of projects.

(1) *A lost-time injury refers to any incident causing bodily harm or psychological trauma to an employee in the course of his or her duties and resulting in at least one day off work.*

In the United States, a workstation ergonomics program, based on a set of e-learning modules, has been in place for several years. In addition, several facilities have launched a program to improve workstation ergonomics, primarily in packaging operations.

In China, research has been initiated into improving load handling.

Overall, numerous initiatives have been undertaken to improve ergonomics in various work situations, including load handling, packaging, unloading, equipment control, facility maintenance, and laboratory and office work.

Before implementing improvement initiatives, the Group organizes awareness sessions to improve understanding of ergonomics.

In 2018, the network of ergonomics correspondents continued to grow, particularly within Bostik. Two network meetings were organized during the year to facilitate the exchange of best practices. In addition, medical staff were given the same training in ergonomics as the ergonomics correspondents.

Lastly, HSE project reviews systematically address the integration of ergonomic factors.

Preventing stress and improving quality of work life

In 2008, Arkema France initiated a physician-supported stress management program for individual employees, whose stress levels are determined by taking a standardized stress, anxiety and depression test (OMSAD) during their annual check-up with the occupational physician. The Group has also undertaken a company-wide workplace stress prevention initiative to improve any working environment identified as being at risk, based on such proven indicators as an abnormally high percentage of employees diagnosed as being over-stressed.

In 2018, the initiative was strengthened by the signature of a "health and work" agreement covering stress prevention, ergonomics, disability and disconnection. The agreement aims to:

- ensure the relevance of the various measures taken in these areas by strengthening cohesion between the various parties involved and between the working groups set up under existing agreements;
- preserve and enhance the actions undertaken;
- anticipate changes to occupational health issues by gathering and sharing intelligence on these topics;
- strengthen the role of employee representatives by creating a Steering Committee as of 2019; and
- protect health in the workplace.

4.3.2.2.3 Medical care

Regular medical check-ups were available in 92.5% of Group companies in 2018, covering 92.7% of employees.

In France, pursuant to the decree on the modernization of occupational medicine dated 27 December 2016, all employees now have access to individual exposure sheets to facilitate the monitoring of their health.

4.3.2.2.4 Occupational illnesses

Toxic or hazardous substances have been and continue to be used in the manufacture of the Group's products. Despite the safety and monitoring procedures in place Group-wide and in each production facility, employees may have been exposed to such substances and may develop illnesses arising from such exposure.

In this respect, like most manufacturers, the Group has used a variety of asbestos-based insulating or heat-proofing materials at its production facilities in the past. Consequently, certain employees may have been exposed to such materials before they were gradually removed and replaced.

Claims for occupational illnesses related to past asbestos exposure have been filed against the Group, mostly for periods before 1980. The risk of exposure to chemicals is described in section 2.1.1 of this document.

With respect to industrial hygiene, beyond the use of:

- enclosed industrial processes limiting emissions as much as possible;
- protective systems such as source capture of residual emissions, general improvement works designed to minimize exposure; and
- the use of appropriate personal protective equipment at each workstation;

the Group requires risk exposure to be assessed at each workstation and that employees' residual exposure to hazardous chemicals be regularly measured in order to prevent the risk of occupational illness in the future. Measurement data are stored in conditions that guarantee their long-term integrity.

In 2018, 66 occupational illnesses were reported Group-wide, of which 20 were related to exposure to asbestos and 32 to exposure to chemicals. These figures include illnesses not yet included in the tables listing occupational illnesses.

In France, the Group also deploys traceability programs to track potential exposure to arduous working conditions in its facilities (including chemicals exposure), as part of its global risk assessment report. Globally, the Group is working on digitizing its risk assessment data using the dedicated STARMAP tool (described in section 4.3.2.2.2 of this chapter), which guarantees internal traceability.

Agreements on early retirement for employees in asbestos-contaminated facilities

In France, four Group sites have been included by ministerial decree on a list of sites whose current employees would be entitled to the early retirement provisions for asbestos workers. The Group cannot exclude that other Group sites may be added to the list in the future.

In this context, on 30 June 2003, Arkema France signed an agreement with all of the representative trade unions that improved the terms of retirement for employees qualifying for this provision, and adjusted their retirement dates to facilitate the transfer of their skills and knowledge within the organization. These measures were extended to all Group companies in France by an agreement signed on 1 September 2007 with all of the unions. For more information, please refer to note 18 to the 2018 consolidated financial statements in section 5.3.3 of this document.

4.3.2.3 PROCESS SAFETY

The Group carefully analyzes the industrial risks associated with all of its production, transportation, loading/offloading and storage processes and pays particular attention to both internal and external feedback concerning incidents, accidents and best industrial risk management practices.

The aim of the risk analysis is to identify and manage potential risks that may cause harm to people, goods or the environment. This enables the Group to seek out processes that are inherently safer and to implement risk management measures that focus on prevention.

The analysis is carried out in compliance with applicable legislation, using systematic studies based on recognized methods, which are chosen in accordance with the type of process involved, the complexity of the operations and the size of the facility. The aspects taken into account include (i) the risks associated with the properties of the chemical products used, (ii) the risks associated with operating conditions, equipment characteristics and potential technical and human weaknesses, (iii) the risks associated with the location of units on a site and their potential interaction and (iv) natural risks.

The risks identified in this way are prioritized using a semi-quantitative process developed and led by a network of experts in Europe, the United States and Asia. The experts are also responsible for preparing the directives, procedures and guidelines required for effective risk management.

The risk analysis process and the corresponding measures are carried out prior to the implementation of new processes, of new facilities, of operations that require the use of new chemical products, and of extensions or modifications to existing facilities. The resulting risk analyses are updated periodically.

As a result, the Group regularly makes improvements to its existing production units. In 2018, Group capital expenditure allocated to safety, the environment and maintaining the production facilities to standard amounted to €270 million, versus €242 million in 2017.

At the same time, the Group is investing heavily to reinforce a culture of process safety among its employees. This involves not only technical training in process safety systems and methods, but also seminars in the United States, Europe and Asia for plant employees and managers, conducted by experts from the Center for Chemical Process Safety of the American Institute of Chemical Engineers, companies specializing in process safety, or the Group. In 2018, the DSEG published a booklet entitled "Process safety fundamentals" for plant employees and managers to inform, train and share information with them on process safety values.

In France, Technological Risk Prevention Plans (*plans de prévention des risques technologiques* - PPRT) put in place in accordance with environmental legislation help manage urban development around the Group's upper-tier Seveso facilities. As of year-end 2018, 16 facilities operated by the Group in France are subject to a PPRT, for which the Group is required to part-finance related measures. Furthermore, the French ministerial decree of 29 September 2005, requiring that the probability of occurrence, kinetics, impact intensity and severity of potential accidents be assessed and addressed in the hazardous impact studies performed for classified installations subject to authorization, also entails the introduction of risk management measures at all of the sites classified as such.

In Europe, at the date of this document, 35 of the Group's production facilities are subject to reinforced monitoring in accordance with the provisions of the Seveso III directive (directive 2012/18/EU of 4 July 2012) concerning major accidents involving hazardous substances. This directive requires, in particular, the deployment of safety management systems and the regular updating of hazard studies.

In the United States, the management of industrial safety risks is primarily regulated by the Occupational Safety and Health Administration (OSHA) and its Process Safety Management of Highly Hazardous Chemicals standard and by the Environmental Protection Agency (EPA) and its Risk Management Plan (RMP) Rule, implementing section 112(r) of the Clean Air Act. In particular, these texts require companies to inform authorities if they use or store a quantity of a hazardous substance above a defined threshold and, if such a substance is stored, to implement specific risk management programs that include a heightened equipment inspection process, operator training and emergency plans. Other regulations at the federal, state or local level are applicable to the storage of chemicals, the safety of operators when handling stored products and the storage of highly hazardous substances.

For sites exposed to natural risks such as extreme weather events or earthquakes, risk scenarios are defined and regularly updated, together with the measures designed to mitigate their impact. For further details, see the risk of accidents at sites in section 2.1.1 of this document.

Crisis management

The in-plant crisis management procedures are broadly based on the Group Crisis Management directive, which covers the management of potentially critical situations in the areas of health, safety and the environment on Group sites and during transportation.

A year-round on-call system enables the Group to manage crises by setting up a dedicated crisis management team. The Group regularly offers training courses in "Crisis management and communication" and conducts simulations of crises and set-up of crisis management teams.

- Process safety events (PSEs)

The Group is intent on minimizing the number of process safety events. In 2017, Arkema adopted the new process safety event criteria published by the International Council of Chemical Associations (ICCA) and began reporting a new process safety indicator, the PSER (number of process safety events per million hours worked) based on ICCA and CEFIC criteria.

The Group is contributing to industry-wide efforts on reporting reliability and harmonization for this complex indicator, which is new for the chemicals sector. This explains why the 2017 PSER was recalculated.

2025 TARGET

Driving further efforts on reducing industrial accident risks, the Group has set the new strategic target of a PSER under 3 by 2025.

In 2018, the PSER was 4.4, compared to 3.9 in 2017. This increase was mainly the result of harmonization in indicator calculation.

Major PSEs are reported as soon as possible to Executive Committee members and to the surrounding community in the event of nuisances, applying the procedures specified for managing such events.

The number of PSEs is reviewed monthly by the Executive Committee.

Transportation-related events

Transportation-related events are events that occur during the transportation or handling of hazardous and non-hazardous goods at loading/offloading areas and on Group and customer sites. The Group uses six criteria to distinguish between major and minor events, primarily based on the regulations in effect for the transportation of hazardous goods.

Since 2016, major events have been communicated to the Executive Committee on a quarterly basis.

4.3.2.4 SECURITY

In the area of security, Arkema provides training and makes every effort to use the best technologies available in order to protect people and the facilities. The Group's action plans are notably based on recommendations by public authorities and on targeted audits.

To enhance protection against malicious acts, Arkema has decided to strengthen its security policy in several key areas:

- **cyber security**: heightened protection of the Group's corporate and industrial IT networks worldwide;
- **physical security**: guidelines defining the level of protection to be implemented in the event of an intrusion, depending on the site's criticality and the prevailing social conditions (particularly crime levels);
- **transportation**: additional measures to enhance transportation security;
- **intellectual property**: heightened security measures at research centers; and
- **travel**: increased employee protection during business travel.

FOCUS

The "i-Safe" awareness program

This Group-wide program launched in 2018 is based on a set of 11 best cyber-security practices (known as "the Golden rules"), which are deployed every three months via team meetings that extend to all employees. The first topics covered in these meetings were: prudent use of USB flash drives and email, vigilance in the face of potential attacks, and safe business travel.

4.3.3 Environmental information

REDUCING THE ENVIRONMENTAL FOOTPRINT OF THE GROUP'S OPERATIONS

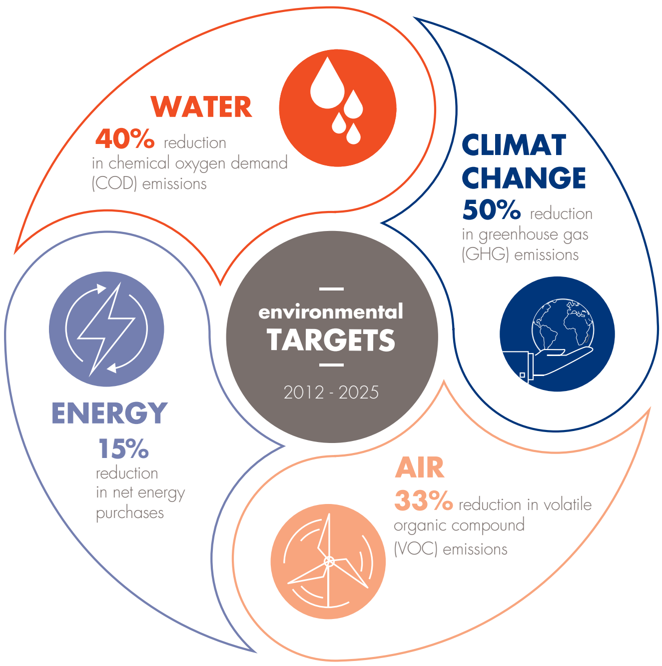
4.3.3.1 ENVIRONMENTAL MANAGEMENT

Reducing its environmental footprint and combating climate change are part of Arkema's commitment to being a responsible manufacturer. To achieve these objectives, the Group continues to upgrade its manufacturing practices to reduce emissions, optimize its use of energy, water and non-renewable raw materials, and support the circular economy. The Group's plants stringently track their effluent releases, air emissions and waste production and implement appropriate measures to manage the risks associated with the environment and climate change, taking into account their potential impact not only for Arkema but also for the environment and other stakeholders.

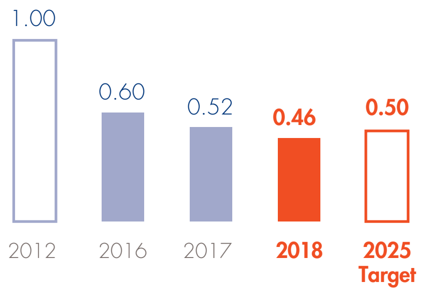
The main risks associated with the Group's activities relate to air, water and soil pollution, climate change and the use of resources. The due diligence procedures and policies implemented to prevent, identify and mitigate these risks and the outcomes of such policies in the form of performance indicators are presented in detail below and organized around the topics of climate change, resource management and impact on biodiversity.

In addition to these initiatives carried out at its industrial sites, Arkema also leverages its sustainable development-oriented innovation process to develop solutions for its customers that contribute to combating climate change, facilitate the management of water resources, support new energies and enhance energy efficiency, thereby providing new opportunities for growth. For further details, see section 1.1 of this document.

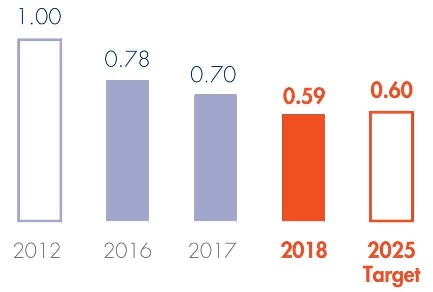
The materiality analysis set out in section 4.1.5 of this chapter confirms the importance for stakeholders of environmental topics, for which the Group has already defined four objectives. These objectives apply to intensive indicators, known as Environmental Footprint Performance Indicators (EFPIs), which are not impacted by changes in the scope of reporting, making them more effective in tracking the Group's industrial performance. The following charts illustrate the objectives and the progress made since the 2012 baseline. Through the efforts undertaken, a number of targets were reached ahead of time in 2018, and some could now be raised under the Group's continuous improvement initiative.



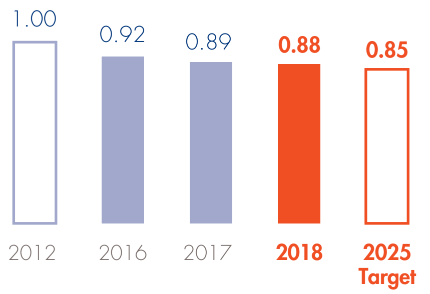
CLIMATE
(DIRECT GREENHOUSE GAS EMISSIONS EFPI)



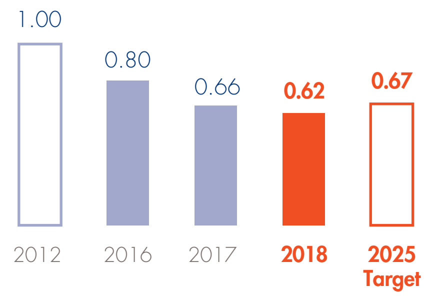
WATER
(CHEMICAL OXYGEN DEMAND EFPI)



ENERGY
(NET ENERGY PURCHASES EFPI)



AIR
(VOLATILE ORGANIC COMPOUNDS EFPI)



NB: the change in the EFPIs is expressed in relation to an index base of 1 in 2012.

In addition to the progress made in these four intensive indicators, the Group reports absolute figures for every parameter used to track the Group's environmental footprint.

To meet its targets, the Group has undertaken initiatives at two levels:

- continuous improvement programs, based on employee training and an action plan deployed in every unit; and
- a certification process, completed by internal audits, to assess the performance of each plant's environmental management system.

Regulatory and compliance monitoring

The Group ensures that its HSE network properly understands the applicable EU regulations, such as Phase III of the European Union Emissions Trading Scheme (EU ETS), the Industrial Emissions Directive (IED), the reviewed Best Available Techniques Reference (BREF) documents, as well as the latest environmental data reporting rules which concern it, thanks to the organization of awareness-building sessions and dedicated network meetings. The Group also performs regulatory compliance audits every three years at the US facilities. For China, a regulatory monitoring process has been set up with a specialized firm. European facilities can monitor their compliance with applicable regulations using specific IT applications dedicated to each country's legislation.

Management engagement

Initiatives underway to reduce the environmental footprint are extensively reviewed and discussed within the Group:

- each business's entire environmental footprint, including its energy footprint, is reviewed annually in individual meetings with the business's Managing Director and industrial Vice-President(s) and the Group Safety and Environment and Sustainable Development Vice-Presidents. During this process, the managers concerned are assigned an environmental target for the following year. This target is a criterion for their annual performance review and compensation;
- the Group's annual environmental and energy reports presenting results for the reporting and prior years, along with historical environmental footprint data (excluding energy) for the trailing six years, are issued to all the departments concerned. These reports track the initiatives that helped to improve the Group's environmental performance. A total of 165 initiatives were undertaken in 2018. They covered the full range of environmental related topics, including water

withdrawals, the reduction in water effluent releases, GHG and COV emissions, soil contamination and waste production; and

- each year, the Group Safety and Environment Vice-President and the Sustainable Development Vice-President provide the Executive Committee with overviews of, respectively, the Group's environmental performance and the progress made in the key indicators towards the 2025 targets.

In addition to internally tracking the improvement plans deployed in each entity, the Group ensures alignment among the environmental management systems through an external certification process.

Environmental statement

The Group's statement concerning its environmental indicators is based on the principles of relevance, representativeness and consistency. The methodology applied is described in section 4.5 of this chapter.

4.3.3.2 CLIMATE CHANGE

A firm supporter of the fight against climate change, Arkema is striving to reduce its energy use and the greenhouse gas emissions associated with its activities through its Arkenergy program.

At the One Planet Summit in Paris in December 2017, Arkema reaffirmed its commitment to a low-carbon industry and economy by signing the French Business Climate Pledge along with ca. 100 other French companies.

The Group is also determined to enhance its product range, notably by developing solutions that help reduce greenhouse gas emissions. This is illustrated by changes to its fluorogases offering and by the development of the four innovation platforms described in section 1.1.2 of this document: "Lightweight materials and design", "New energies", "Home efficiency and insulation" and "Bio-based products".

Arkema's climate policy and its management of climate-related issues are included in the Group's environmental policy, which is described in section 4.3.1 of this chapter, as part of its commitment to being a responsible manufacturer.

Greenhouse gas emissions are reported in accordance with the GHG Protocol:

- Scope 1 emissions are direct emissions;
- Scope 2 emissions are indirect emissions relating to energy; and
- Scope 3 emissions are indirect emissions relating to the value chain, both upstream and downstream of the Group's activities.

4.3.3.2.1 Scope 1 and 2 greenhouse gas emissions

Scope 1 direct emissions

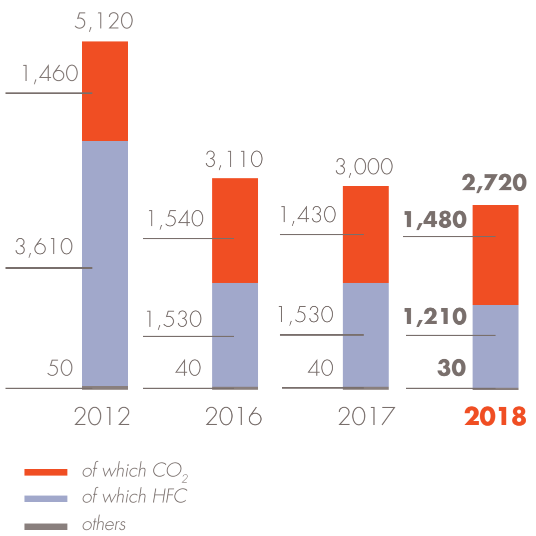
The Group's direct greenhouse gas emissions (Scope 1 GHG) arise from:

- hydrofluorocarbon (HFC) emissions from its fluorogas production units;
- fugitive emissions from cooling circuits using GHGs;
- burning of fuel oil and gas in production operations; and
- processes that generate carbon dioxide (CO_2), nitrous oxide (N_2O) or methane (CH_4) as a product, by-product, co-product or waste, and gas discharges from processes such as thermal oxidation, which converts VOCs into CO_2.

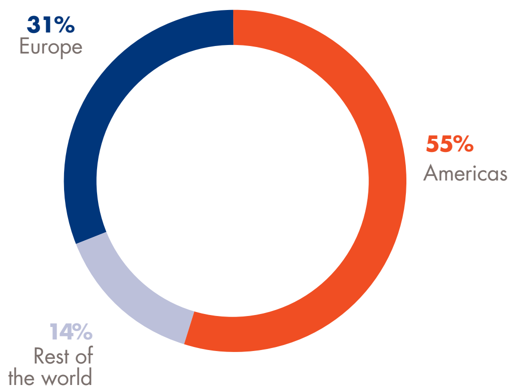
Absolute indicator for direct greenhouse gas emissions

The chart below details direct greenhouse gas emissions (in kt CO_2 eq.) from the Group's operations in 2018, 2017 and 2016, calculated according to the methodology described in section 4.5 of this chapter.

DIRECT GHG EMISSIONS *(in kt CO_2 eq. per year)*



The net reduction in GHG emissions (primarily HFC) in 2018 was around 10%. Two of the contributory factors here were the reliability improvements made to the emission treatment systems at the Calvert City site (United States), and the shutdown of the R134a fluorogas production plant at the Pierre-Bénite site (France). The breakdown of direct GHG emissions by region is as follows:



To reduce its impact on global warming, the Group has undertaken a number of actions and deployed effective measures to minimize direct GHG emissions, such as:

- installing emissions scrubbers, notably at the plants in Calvert City (United States), Pierre-Bénite (France) and Changshu (China);
- introducing systematic leak detection programs at the fluorogas production facilities, so as to minimize fugitive emissions; and
- replacing boilers with more efficient installations as part of the Arkenergy program (see the section on energy below).

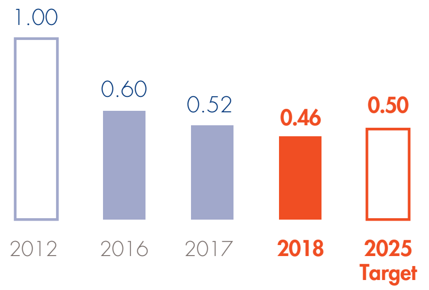
Intensive indicator for direct greenhouse gas emissions

The chart below presents the direct greenhouse emissions EFPI from the Group's operations in 2018, 2017 and 2016, calculated according to the methodology described in section 4.5 of this chapter. The index base is 1 for the year 2012. Emissions are calculated using the Group's biggest GHG emitters, which account for more than 80% of the consolidated total.

2025 TARGET

For 2025, the Group aims to reduce its GHG emissions, expressed in EFPI terms, by 50% compared with 2012.

DIRECT GHG EMISSIONS EFPI



The significant improvement in this indicator in 2018 comes from progress made at all of the most emission-intensive sites, such as the reliability improvements in effluent treatment at the Calvert City site.

The GHG target for 2025 was met in 2018, and the Group is now working to set new targets as part of work to assess its impact with regard to the Paris Agreement.

Scope 2 indirect emissions

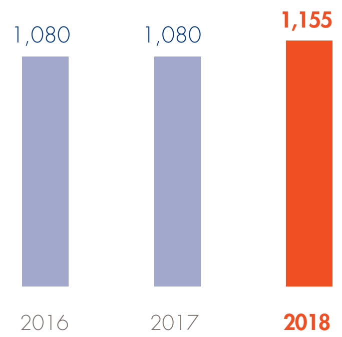
The Group analyzes the following indirect GHG emissions:

- Scope 2 CO_2 emissions from the suppliers of the electricity and steam purchased by the Group; and
- Scope 3 CO_2 emissions, categories 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12 and 15. See section 4.3.3.2.3 below.

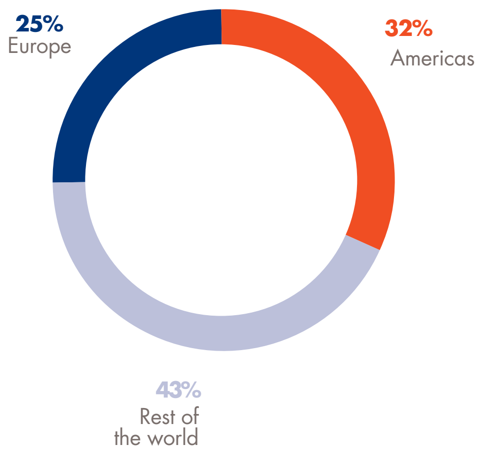
The chart below presents the Scope 2 emissions from the Group's operations in 2018, 2017 and 2016, as defined above and calculated according to the methodology described in section 4.5 of this chapter.

Scope 2 CO_2 emissions break down as follows:

INDIRECT GHG EMISSIONS (SCOPE 2) *(kt CO_2 eq.)*



INDIRECT GHG EMISSIONS BY REGION



Scope 2 CO_2 emissions increased compared to 2017 levels. This is chiefly explained by improved reporting for Scope 2 emissions in China and the purchase of steam at the Hengshui site (China), partially replacing on-site production. The Scope 1 and Scope 2 results for this site remain positive as regards greenhouse gas emissions.

Overall, the Group's GHG emissions (Scope 1 plus Scope 2) in 2018 were 5% down on 2017.

Internal carbon price

In 2016, to enhance its long-term approach, the Group set an internal price for Scope 1 and Scope 2 GHG emissions, expressed in terms of CO_2 equivalent, known as "internal carbon price". It is used to analyze strategic industrial investments and to steer investment decisions under the operational excellence program towards the lowest carbon solutions.

4.3.3.2.2 Energy

The Group deploys a wide range of actions to reduce Scope 1 and 2 CO_2 emissions as part of both the Arkenergy program and its operational excellence strategy (for further details, see the "Profile, ambition and strategy" section in this document).

Energy consumption

The Group uses a variety of energy sources, primarily in its industrial operations. To optimize energy consumption, the Group set the following target:

2025 TARGET

Reduce net energy purchases by 15% in EFPI terms by 2025.

7 AFFORDABLE AND CLEAN ENERGY

To this end, the Group is rolling out the Arkenergy program in every subsidiary through a global network of Energy Leaders in the Business Lines, factories and relevant Procurement and Technical departments. It focuses on optimizing the energies used in the Group's production facilities and processes. Moreover, Arkenergy is structured to meet the following priorities:

- continuously optimize energy use and cost, from equipment design and procurement to day-to-day on-site operations;
- deploy an energy management system to systematically integrate best operational practices, define site-specific targets and periodically review them; and
- ensure compliance with energy efficiency legislation, regulations and other applicable standards.

As well as improving energy efficiency, the program is also contributing to reinforcing the production plants' competitiveness.

Based on energy efficiency audits worldwide, focusing on the plants that account for more than 85% of the Group's energy consumption, the Arkenergy approach covers the following main points:

- implementing the ISO 50001 energy management system in Europe and Asia. To date, a total of 30 sites are ISO 50001-certified, which corresponds to 54% of Arkema's total energy use;
- allocating a dedicated capital expenditure budget specifically for Arkenergy initiatives. In 2018, 50 capital projects were funded out of the budget, including 26 in Europe, 14 in the Americas and 10 in Asia; and
- since 2018, automating processes in order to continuously optimize the use of energy and raw materials.

The Group's deployment of digital technologies helps to optimize energy consumption through the introduction of data collection and analysis systems.

FOCUS

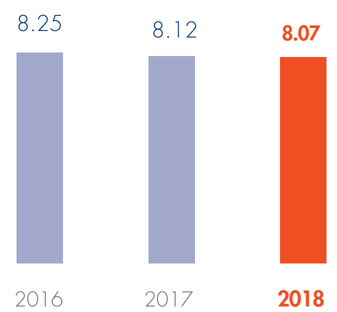
Advanced control programs

In 2018, an advanced control system was integrated into the production units at the *La Chambre* and Lannemezan facilities in France. The installation of "controllers" or IT systems enables comprehensive and coherent management of the units' various operating parameters. The resulting optimization has brought a reduction in the energy (steam) used, while maintaining product quality and operating stability. The expected full-year economic savings amount to several hundred thousand of euros.

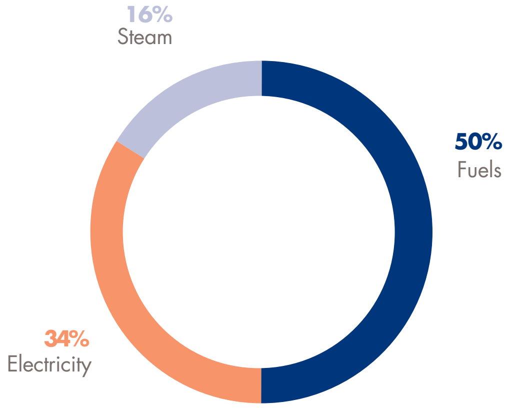
Absolute indicator for energy purchases

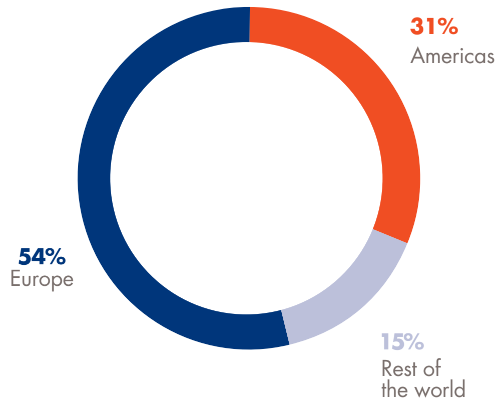
The chart hereafter presents consolidated net energy purchases in 2018, 2017 and 2016, calculated in terawatt-hours according to the methodology described in section 4.5 of this document.

NET ENERGY PURCHASES *(in TWh)*



Net energy purchases by region and by type of energy break down as follows:





In 2018:

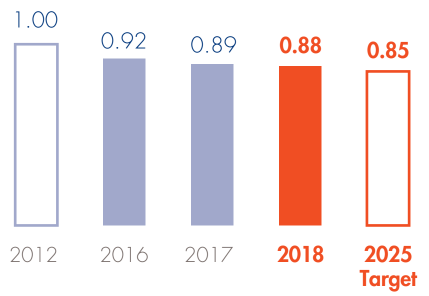
- 97% of the TWh generated by fuel were natural gas-fired, up from 93% in 2017. This increase stems primarily from the change in boiler fuel at the Hengshui site (China) in 2017.
- 22% of the net TWh purchased by the Group, regardless of source, were from low-carbon electricity, up from 18% in 2017. One of the factors behind this higher figure is the more detailed reporting of the energy mix with energy suppliers.

Intensive indicator for energy purchases

The chart below presents the net energy purchases EFPI for the Group's operations in 2018, 2017 and 2016, calculated according to the methodology described in section 4.5 of this chapter. Net energy purchases are calculated using the Group's biggest net energy purchasing entities, which account for more than 80% of the consolidated total.

In 2018 we saw a slight improvement in this indicator, in a context of major regulatory maintenance shutdowns at sites making major contributions to energy purchases.

NET ENERGY PURCHASES EFPI



4.3.3.2.3 Scope 3 emissions inventory

Following an initial inventory of its indirect Scope 3 emissions in 2016, the Group calculates the Scope 3 emissions arising from its upstream and downstream value chain each year, in accordance with the GHG Protocol calculation guidance issued by the World Business Council for Sustainable Development (WBCSD). The guidance also supports compliance with French legislation and standards, including the provisions of French Law no. 2015-992 of 17 August 2015 concerning the energy transition to drive green growth.

According to the WBCSD, Scope 3 emissions arise from 15 categories of activities across the corporate value chain. Arkema has identified ten significant categories, three non-significant categories and two non-relevant categories. The emissions calculated for the Group in 2018 are presented by category in the table below. The calculation methods are described in the methodology presented in section 4.5.2.4 of this chapter.

Category number	Category name	Emissions *(kt CO_2 eq.)*	Comment
1	Purchased goods and services	5,285	Very material. As is often the case in the chemicals industry, this category is material for Arkema.
2	Capital goods	1,231	Material
3	Fuel- and energy-related activities not included in Scope 1 or 2	717	Material
4	Inbound freight (upstream transportation and distribution)	Data not available	Material
5	Waste generated	588	Material
6	Business travel	31	Non-material
7	Employee commuting	32	Non-material
8	Upstream leased assets	26	Non-material
9	Downstream transportation and distribution	296	Material. The slight increase of around 14 kt CO_2 eq. from 2017 to 2018 reflects better reporting by the subsidiaries and a significant increase in air freight.
10	Processing of products sold	Data not available	Material. Given the diversity of applications for the products sold by the Group, the indirect emissions relating to the processing of said products cannot be assessed reliably.
11	Use of products sold	Data not available	Very material. As is often the case in the chemicals industry, this category is the most material for Arkema. Current knowledge of product use data makes it impossible to estimate this category reliably. However, the Group has identified fluorogases as the most emission-intensive products. Arkema is developing new blends and products to enable the transition from the old generation of products (HCFCs) to current (HFCs) and new generations (HFOs).
12	End-of-life treatment of products sold	1,354	Very material. This estimate does not take into account the fluorogas or Bostik businesses.
13	Downstream leased assets	-	Not relevant. The Group does not lease any assets downstream of its value chain.
14	Franchises	-	Not relevant. The Group does not have any franchises.
15	Investments	Data not available	Material
TOTAL		**9,560**	

In 2018, estimated Scope 3 indirect GHG emissions came to 9,560 kt CO_2 eq., and were higher than Scope 1 and 2 emissions combined.

Building on this nine-category analysis of Scope 3 emissions in 2018, the Group will continue the data collection process, particularly for categories identified as material and for which the data is missing or incomplete. The goal is to prepare effective action plans to reduce the Group's material Scope 3 emissions.

Montreal Protocol

In addition to reporting on greenhouse gas emissions in accordance with the GHG Protocol, which is based on the Kyoto Protocol, the Group also records emissions of substances targeted by the Montreal Protocol. These are included in the GHG EFPI strategic indicator.

These emissions were down in 2018, as was the GHG EFPI, to 277 kt CO_2 eq., from 340 kt CO_2 eq. in 2017.

Non-financial rating

Arkema obtained an A- CDP Climate Change rating in 2018, as in 2017. It ranked among the 17% best-performing companies on climate change management in the assessment of the CDP rating agency. This reflects the pertinence of the Group's approach, actions and contribution to meeting this key challenge.

4.3.3.3 RESOURCES

The Group's initiatives to reduce the environmental impact of its industrial sites are underpinned by its resource management policy and notably consist in optimizing their use of raw materials, energy and natural resources like water. New manufacturing units are designed to incorporate environmental footprint considerations into the choice of processes and equipment. Special attention is also paid to operating conditions, and maintenance and development investments are regularly undertaken to optimize the use of water, energy and raw materials at Group plants.

To further optimize management of non-renewable resources, Arkema is also committed to stimulating the circular economy.

4.3.3.3.1 Energy use

Arkema has developed a climate policy, which is presented in section 4.3.3.2 of this chapter. Energy use has an impact on both resources and greenhouse gas emissions. Energy-related data are therefore presented under the heading "Energy", in section 4.3.3.2 of this chapter.

4.3.3.3.2 Water use

Water is used in the Group's industrial operations to:

- provide a reaction medium for certain production processes, cool production installations and clean products and equipment;
- generate steam; and
- operate hydraulic barriers to treat groundwater contaminated by legacy pollution on historical sites.

To contribute to optimizing the use of fresh water, whether withdrawn from the surface or the water table, the Group is upgrading production practices by installing water-saving systems and closed loops. These initiatives can cover a wide range of solutions, such as tracking usage more effectively, installing flow meters, deploying leak detection programs, changing technologies, upgrading fire-fighting systems, recovering rainwater and recycling water from scrubbing or boiler condensates.

In 2016, as part of the operational excellence program, the Group launched the "Optim'O" project to optimize its production units' water management. The analyses carried out as part of this project found that:

- 80% of water withdrawn from the natural environment is returned as surface water;
- 90% of consolidated water use is attributable to less than 17 plants, none of which are located in a water-stressed region; and
- facilities located in water-stressed regions represent less than 2% of the Group's consolidated water use.

Drawing on these observations, the Optim'O project gives rise to numerous initiatives, particularly at the 35 sites that account for most of the Group's water use and/or generate the most wastewater. The work carried out on the water network at the Pierre-Bénite site (France), for example, has reduced the use of drinking water by more than 25%.

FOCUS

Mapping water use

In 2018, the Rho facility in Italy created a comprehensive map of its various units' water withdrawals and their use. The mapping process led to optimized water management and wastewater treatment, resulting in an overall reduction of 15% in the platform's water needs.

The chart below presents consolidated water withdrawals in 2018, 2017 and 2016, calculated according to the methodology described in section 4.5 of this chapter.

Water use	2018	2017	2016
Total water withdrawn *(in millions of cu.m)*	119	118	126

In 2018, water withdrawal was stable compared to 2017.

The CDP rating agency gave Arkema a Water security rating of B- in 2018, in recognition of the Group's approach and actions in the area of responsible water management.

4.3.3.3.3 Raw material use

Arkema wants to contribute to optimizing the consumption of non-renewable raw materials used in its manufacturing process with the primary goal of reducing their use by deploying process control initiatives and developing best operating practices. These initiatives are described in more detail in the 'Profile, ambition and strategy' section of this document.

In addition, to optimize its own and its customers' raw materials use, the Group undertakes, independently or in partnership with suppliers, such programs as recycling the reaction solvents used in its production processes. It also offers customers other recycling solutions and deploys the circular economy initiatives described below.

Lastly, the Group uses renewable and especially bio-based raw materials in its products. The Group products in question are presented in section 1.1.2 of this document. This ongoing commitment was demonstrated in 2018 by the fact that products at least 20% made from renewable raw materials accounted for around 9% of Group sales.

4.3.3.3.4 Circular economy

The Group takes action to preserve non-renewable raw materials and stimulate the circular economy. It reuses by-products and strives to limit the waste generated by its industrial processes. Thanks to eco-design, it extends the lifespan of customer products and facilitates recycling. It also helps its customers assess the environmental performance of their products.

Life-cycle assessments

To assess the environmental performance of certain products and in response to customer requests, life-cycle assessments (LCAs) are used to convert the entire inventory of a product's process material and energy inputs and environmental emissions into environmental impacts. The Group has developed dedicated LCA expertise at its Rhône-Alpes research center in France. It has also set up the global Arkema LCA Network, which is instilling this LCA culture across the organization, in particular through periodic employee training courses, and endurably embedding it into the Group's CSR process.

The Group supplies LCA data at the request of customers to enable them to assess the environmental footprint of a given product all along its value chain. This particularly concerns the Rilsan®, Rilsamid®, Pebax®, Kynar® and Forane® ranges, as well as Bostik adhesives and synthetic intermediates. Assessments are also performed, through trade associations, for acrylic monomers, PMMA and resin dispersions for coating applications.

Depending on the type of product, internal experts assess the impacts in such areas as climate (greenhouse gas emissions), ozone depletion potential, contribution to acidification, and energy, water and land use. Their scope is generally limited to a cradle-to-gate analysis, *i.e.*, to production operations and upstream factors. In certain cases, this expertise may be shared with customers to help them implement their own eco-design process, by providing them with the impact data and discussing the most relevant indicators and the best practices associated with their assessment.

LCAs are performed in accordance with the recommendations of the International Reference Life Cycle Data System (ILCD) Handbook and the international ISO 14040 and ISO 14044 standards describing the principles and framework for LCAs.

Extending the lifespan of customer products

Arkema aims to constantly improve the lifespan of both its own and its customers' products.

For example, Kynar® offers a coating with a particularly long lifespan. The Aquatec® version, used for reflective roofs, retains a virtually intact white finish maintenance-free for an especially long time.

Arkema has also developed a line of organic peroxides for crosslinking rubber, which is then used to manufacture automotive and other parts that last longer than their conventional counterparts.

Recycling

Arkema is developing a number of solutions that are making it easier for customers to recycle their products.

For example, Elium® liquid thermoplastic resins are produced using the same equipment and processes as thermoset composites. Their properties make them easy to recycle, unlike parts made from thermoset resins such as epoxy.

The Group has also developed technologies to protect glass bottles (Kercoat®) and hide scuffs (Opticoat®), which significantly improve the appearance and useful lives of bottles by tripling the number of times returnable beer and other bottles can be reused.

The adsorption business has developed a solution that increases the recycling rate of roadwork scrap. Using Cecabase RT® additives in the asphalt mix increases the aggregate recycling rate by 10% to 15% compared with conventional techniques. These additives also reduce the asphalt mix's workable heating temperature.

In Europe, the Reverplast project, under which a "Commitment to green growth" was signed with the French government in 2016, has now been replaced by the European MMAtwo project. Launched on 1 November 2018, the new project brings together 13 partners, including four French businesses representing all stages in the value chain. Their goal is to develop a chemical recycling process for PMMA that is validated on an industrial scale within three years. The European Union is providing €6.6 million of the project's funding, as part of its Horizon 2020 program.

Reusing by-products

Arkema markets by-products from the production of its leading products by finding suitable commercial applications linked to their inherent properties.

By-products from the conversion of castor oil into undecanoic acid 11 at the Marseille plant, which have been sold for many years through stable sales channels, are an example of how existing products are re-used.

Waste

RECYCLING

In addition, Arkema is seeking solutions to transform certain types of industrial waste, which otherwise would be discarded, into products that can be used in other industries. In 2015, the Group formed an inter-business working group to step up these efforts and increase coordination with partners.

In 2018, as in 2017, 15% of hazardous waste produced worldwide was recycled on- or off-site to recover useful materials.

For example, the Mont facility in France has long marketed the sodium-water produced as part of a monomer purification process to the paper industry for use in the kraft paper and cardboard production process. The basic, organic material-rich water helps to minimize sulfur loss in the process regeneration loops.

At the Hengshui site in China, the flow of residual sulfuric acid generated by the manufacturing process for sebacic acid is neutralized to obtain a sodium sulfate solution, which is then concentrated and crystallized. Instead of discharging the residual acid as waste, the plant is now able to sell 50,000 tonnes a year of solid sodium sulfate.

EMISSIONS

While inherent to its industrial operations, the Group ensures that its waste production is managed at every stage of its business activity and that resource recovery and/or recycling solutions are found whenever possible.

This commitment is reflected in a number of areas:

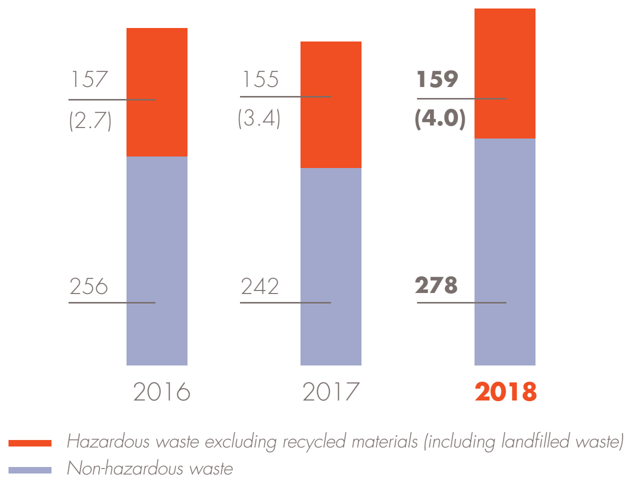
- reducing waste at source, by designing products and processes that generate as little waste as possible;
- recycling waste in the product value chain, in compliance with the REACH regulation; and
- recovering the energy potential of by-products and waste, wherever possible, by burning them as fuel.

In recent years, the Group has in particular:

- explored new ways to recover and reuse certain types of by-products, for example, to replace conventional fuels in boilers, notably at the La Chambre, Carling and Marseille sites in France;
- recycled cleaning solvents and optimized cleaning cycles; and
- installed filters to reduce sludge volumes.

The following chart shows the amounts of hazardous and non-hazardous waste generated by the Group's operations in 2018, 2017 and 2016, calculated according to the methodology described in section 4.5 of this chapter.

HAZARDOUS AND NON-HAZARDOUS WASTE *(in kt per year)*



In 2018 we saw a significant increase in non-hazardous waste, owing to sustained activity at the Clear Lake site (United States) and to soil and sludge treatment operations at certain sites in France and the United States.

The slight rise in hazardous waste came primarily from increasing activity at the Saint-Auban site (France).

The Group's objective is not only to reduce overall waste production, but also to recycle waste or recover its energy potential by burning it as fuel.

The following table shows the amounts of hazardous waste that were either recycled or burned as fuel in 2018, 2017 and 2016, calculated according to the methodology described in section 4.5 of this chapter.

Hazardous waste *(kt per year)*	**2018**	**2017**	**2016**
Waste recycled into materials	28	27	28
Waste burned as fuel	90	90	92
Total waste (including recycled)	187	184	188

Waste recovery for reuse as fuel continues across the Group. In 2018, 15% of hazardous waste produced by the Group worldwide was recycled at the production site or off-site to recover useful materials and 48% was burned as fuel.

4.3.3.4 BIODIVERSITY

Arkema cares about preserving biodiversity and contributes to protecting the world's fauna and flora by reducing each site's emissions into air, water and soil.

The following paragraphs describe the Group's commitments in this area, its prevention and mitigation programs and the indicators for measuring their effectiveness, particularly in terms of the volatile organic compounds (VOCs) released into the air and the chemical oxygen demand (COD) of water discharges.

4.3.3.4.1 Measures to protect flora, fauna and biodiversity in general

Preserving biodiversity primarily means protecting all of the flora and fauna species liable to be impacted by emissions from the Group's operations.

The initiatives carried out are therefore designed to reduce releases into air and water and their impact on the surrounding soil and sub-soil.

Periodic environmental assessments enable the facilities to identify their environmental impact and the species liable to be affected, define priority objectives for their environmental protection action plans, and measure the improvements. Additionally, new manufacturing units are designed to incorporate environmental footprint considerations into the choice of processes and equipment.

In this way, the compliance and other initiatives being led by the Group have enabled:

- a reduction in chemical oxygen demand (COD) in the effluent discharged into rivers, thereby preserving the dissolved oxygen that is essential to all aquatic life, as described below;
- a reduction in the amount of volatile organic compounds (VOCs) released into the air, thereby limiting the formation of ground-level ozone, a super-oxidant harmful to flora and fauna, as described below;
- a reduction in greenhouse gas (GHG) emissions, thereby contributing to the fight against global warming, as described below;
- a reduction in SO_2 emissions, thereby helping to prevent the formation of acid rain which, in addition to its direct impact on plant life, can also alter soil and surface water characteristics, and a reduction in NOx emissions; and
- Arkema to continue soil remediation projects at sites with long-standing industrial operations, as described in section 4.3.3.4.3 of this chapter, in order to protect the species that depend on the land, preserve the quality of local groundwater and control the impact of legacy pollution.

4.3.3.4.2 Emissions into air, water and soil

The Group pursues an active policy of managing and reducing the impact of its operations on emissions into air, water and soil.

As part of this process, emitted substances are identified and their amounts calculated by category, so that appropriate measures can be taken to manage each one, in compliance with applicable host country legislation.

In this way, the manufacturing plants are reducing their emissions by optimizing their use of raw materials, energy or natural resources, so that they result in fewer emissions and less waste. In line with the Group's strategic environmental objectives, as tracked by the EFPIs, production units are also being constantly improved with process upgrades and the installation of effluent treatment facilities.

Air emissions

The Group's objective is to minimize its emissions of the most harmful compounds, particularly greenhouse gases (GHG), as described above, volatile organic compounds (VOCs), acidifying substances (nitrogen oxides and sulfur dioxide) and dust.

VOLATILE ORGANIC COMPOUND (VOC) EMISSIONS

Group production facilities are reducing their VOC emissions in several ways, including:

- collecting and treating effluents containing VOCs, particularly with thermal oxidizers or vent scrubbing; and
- carrying out regular campaigns to detect and eliminate VOC leaks.

The Group is also reducing its emissions of acidifying substances by:

- fueling boilers with low or ultra-low sulfur fuels, or replacing fuel oil with natural gas; and
- installing new low-NOx burner technologies.

In 2018, substantial work was carried out on mapping VOC emissions at the Balan site (France) with a view to optimizing operating conditions. This was coupled with work on improving the reliability of VOC emission treatment. These actions resulted in a 40% reduction in the site's VOC emissions.

ABSOLUTE INDICATORS FOR AIR EMISSIONS

The indicators in the table below present air emissions from the Group's operations in 2018, 2017 and 2016, calculated according to the methodology described in section 4.5 of this chapter.

Air emissions	2018	2017	2016
Acidifying substances *(t SO_2 eq.)*	3,040	3,380	3,570
SOx *(t)*	1,960	2,254	2,332
NOx *(t)*	1,230	1,350	1,467
Carbon monoxide (CO) *(t)*	940	860	690
Volatile organic compounds (VOCs) *(t)*	4,150	4,280	4,800
Dust *(t)*	235	230	300

The steady decline in acidifying substances since 2016 attests to the success of the initiatives undertaken by several production plants to significantly reduce their emissions. Several investments were made to upgrade the boilers, either to run on natural gas instead of fuel oil or to equip them with vented emission treatment systems, so that these emissions were significantly reduced. The 2018 fall in SO_2 emissions comes from maintenance shutdown of the Lacq units (France), progress on the change from coal to gas boilers at the Hengshui site (China) and reliability improvements at the Houston treatment units (United States).

The decrease in VOCs comes from the ongoing emissions reduction and recovery program at Hengshui (China) and from reliability improvements on the thermal oxidizer and optimization of operating conditions at the Balan site (France).

The reduction in carbon monoxide is primarily attributable to improved reporting for the Taixing site.

FOCUS

NOx reduction at the Hengshui site (China)

The SCR (Selective Catalytic Reduction) project at the Hengshui site (China) resulted in a very significant reduction in NOx emissions. Discharge from the site was reduced ten-fold.

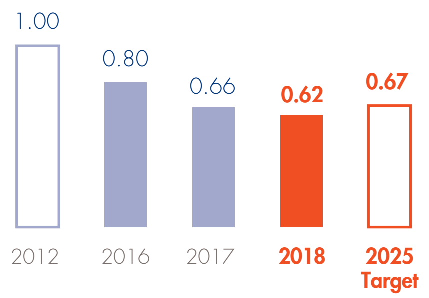
INTENSIVE INDICATOR FOR AIR EMISSIONS

The chart below presents the volatile organic compound emissions EFPI from the Group's operations in 2018, 2017 and 2016, calculated according to the methodology described in section 4.5 of this chapter. Emissions are calculated using the Group's biggest VOC emitters, which account for more than 80% of the consolidated total.

2025 TARGET

Reduce VOC emissions, expressed in EFPI terms, by 33% compared with 2012.

VOLATILE ORGANIC COMPOUND (VOC) EFPI



The significant improvement in this indicator in 2018 results from progress made at several plants as a result of investments undertaken in previous years.

Action plans are being deployed to sustain the improvement dynamic.

Effluent releases

Reducing effluent and other water discharge is one of the Group's main environmental objectives, with particular attention paid to effluents with high chemical oxygen demand (COD) and/or suspended solids.

The Optim'O project, presented above in relation to its water consumption aspects, also aims to reduce the amount of effluent discharged by the Group. It is contributing to:

- continuously optimize water use and the efficiency of the water treatment process, from the initial design of the installations to their daily operation, through the use of advanced technologies and the development of innovative solutions, thanks in particular to the "Water management" innovation platform;
- ensure compliance with applicable legislation and regulatory developments, such as the European Union's Best Available Techniques reference document (BREF) for Common Waste Water (CWW), which sets out the best available techniques for wastewater treatment and the associated threshold emission levels; and
- implement the pretreatment of process effluent, where relevant, to reduce the COD content of effluent sent to wastewater treatment facilities.

Through detailed mapping of effluent treatment conditions at the Group's industrial sites carried out in 2017 under the Optim'O project, 39 priority sites were identified as having the greatest impact on the Group's COD EFPI. An action plan was deployed in 2018 and monitored under a dedicated audit program. Twenty sites were audited in 2018, and the program will be continued at a further 15 sites in 2019.

The VOC target for 2025 was reached early, in 2018, and the Group is considering setting a higher target.

ABSOLUTE INDICATORS FOR EFFLUENT RELEASES

The environmental indicators in the table below present effluent released from the Group's operations in 2018, 2017 and 2016, calculated according to the methodology described in section 4.5 of this chapter.

Effluent releases	2018	2017	2016
Chemical oxygen demand (COD) *(t O_2)*	2,170	2,440	2,600
Suspended solids *(t)*	535	920	770

In recent years, several initiatives have helped to reduce COD emissions from certain plants. Since 2016, the Optim'O project has helped to strengthen this process through better reporting, targeted investments and better facilities management.

FOCUS

Improved operational control for the effluent treatment plant brought a ten-fold reduction in COD discharge at the Rio Claro site (Brazil).

The significant reduction in suspended solids comes chiefly from improved operational control of the effluent treatment plant at the Pierre-Bénite site (France), with emissions reduced by more than 75%.

INTENSIVE INDICATOR FOR EFFLUENT RELEASES

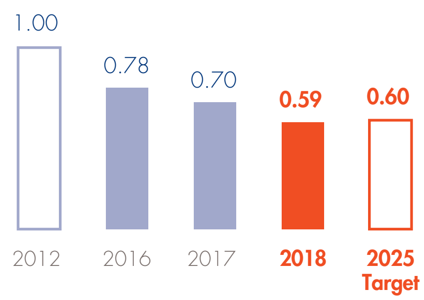
The chart below presents the COD effluent EFPI from the Group's operations in 2018, 2017 and 2016, calculated according to the methodology described in section 4.5 of this chapter. Emissions are calculated using the Group's biggest COD effluent emitters, which account for more than 80% of the consolidated total.

2025 TARGET

Reduce COD emissions, expressed in EFPI terms, by 40% compared with 2012.

14 LIFE BELOW WATER

CHEMICAL OXYGEN DEMAND (COD) EFPI



In 2018, improved operation of wastewater treatment facilities at many sites resulted in a significant reduction in the COD EFPI.

Other emissions

Another major focus of the Group's environmental policies is to ease the impact of nuisances from its operations on people living in nearby communities. Every year, projects are undertaken to attenuate such nuisances as:

- odors, by upgrading incinerators to cut SO_2 emissions;
- noise, by improving air compressor soundproofing; and
- visual pollution (smoke), by firing boilers with natural gas rather than fuel oil.

The Group has put in place communication systems to alert stakeholders in real-time about any event likely to result in noise, odors, or visual pollution in and around a production site. In addition, most facilities now have a system for receiving and responding to complaints from local residents so that they can address the issues and minimize the nuisances to the extent possible. Complaints are investigated and action plans defined accordingly in liaison with local authorities.

Other measures to develop biodiversity

Despite occupying only a limited amount of land, the Group is leading a number of initiatives to help enhance biodiversity on sites where part of the land is not allocated to industrial operations. One of the purposes is to encourage revegetation and the development of local species on and around the sites.

The Group promotes certain initiatives to improve biodiversity around production units. In Italy, for example, some 150 olive trees are being tended on the grounds of the Gissi facility, helping to safeguard the surrounding plant and animal ecosystem.

4.3.3.4.3 Managing legacy pollution and protecting the soil

Arkema responsibly manages soil and groundwater contamination caused by legacy pollution, including the storage of waste from operating facilities that have been operated, sold or acquired. The Group manages its environmental responsibility in such a way as to ensure that the health impacts and risks of its operations are managed in compliance with the applicable regulations, and that the environment is protected over the long term, with an appropriate allocation of funds.

In addition, Arkema implements prevention policies at all of the operating facilities, with mechanical integrity programs, dedicated incident reporting systems and experience sharing. When soil or groundwater contamination is suspected at a facility, an inquiry is conducted to determine the extent of the area concerned and ascertain the impact. The Group cooperates with the authorities to define the appropriate response, in line with applicable legislation.

The Group also implements a wide range of remediation initiatives using new techniques and looks for ways to reuse redundant industrial sites.

Site pollution risks are described in section 2.1.1 of this document.

Brownfield redevelopment

To redevelop certain brownfield sites, the Group is partnering with local players, academics and specialized companies. Some of these sites are used for the installation of photovoltaic panel projects, as was the case at Saint-Auban, in southeastern France, in 2018.

Provisions for the management of legacy pollution

The amount of provisions for environmental risk at 31 December 2018 may be found in note 19.3 to the consolidated financial statements, in section 5.3.3 of this document.

4.4 OPEN DIALOGUE AND CLOSE RELATIONS WITH STAKEHOLDERS

FOSTER INTERACTION AND PROXIMITY WITH STAKEHOLDERS THANKS TO OPEN AND CONSTRUCTIVE DIALOGUE

The Group's activities are part of a value chain and an ecosystem comprising numerous partners and stakeholders, as described in section 4.1.4 of this chapter. Open dialogue with its internal and external stakeholders is a cornerstone of Arkema's corporate social policy and a prerequisite for understanding their expectations, building relationships based on trust and cooperation, and ultimately minimizing social risks and creating value for all.

All of the international standards and principles that the Group upholds, and their transposition into Arkema's corporate reference documents, are presented in section 4.1 of this chapter.

In its dialogue with stakeholders, Arkema:

- respects human rights and fundamental freedoms and makes them central to its activities;
- places great importance on conducting its business in line with the principles and rules on ethics, integrity and compliance. Arkema therefore complies with prevailing laws and regulations and best business practices;
- fosters the individual and collective development of all its employees; Arkema's global human resources policy places a key focus on the development of skills and the promotion of diversity;

- establishes open dialogue with its customers, suppliers and partners with a view to building a responsible value chain that creates shared value. In its choice of industrial and business partners, Arkema favors those that respect its social commitments; and
- helps develop lasting relationships based on trust and openness through its Common Ground® initiative, which is aimed at its neighbors and local host communities.

4.4.1 Employee information

PROMOTING THE INDIVIDUAL AND COLLECTIVE DEVELOPMENT OF ALL ITS EMPLOYEES

4.4.1.1 HR MANAGEMENT

Given the highly technical nature of its businesses, Arkema considers each of its 20,010 employees as experts in their particular area. Since the Group's creation, its human resources principles, methods and management policies have been underpinned by the four core values of simplicity, solidarity, performance and accountability.

Developing its human capital and maintaining a high level of engagement among its employees are key objectives for Arkema, which must continuously evolve in order to meet business, technological, social and environmental expectations in a proactive manner.

Through its talent management policy, Arkema aims to offer employees a career path that enables them to continuously improve their skills and expertise. The Group's initiatives in this regard relate to recruitment, training and career management. With respect to career management, two types of career paths are open to employees: a management career path or a technical career path, which involves the implementation of technical streams in such areas of expertise as research and development, processes and legal affairs.

The introduction of skills matrices reflects the Group's desire to recognize the contribution made by employees with experience in a particular area of expertise, thereby enabling and encouraging all employees to strive for professional growth.

The Group's human resources development policy also addresses the critical issue of ensuring quality of work life. This is achieved through harmonious employee relations, as well as measures to continuously improve working conditions.

The Group ensures that it consistently complies with the constitutional texts, treaties, conventions, laws and regulations in force in the countries and regions in which it operates, as detailed in section 4.4.2 of this chapter.

4.4.1.2 EMPLOYMENT

The Group endeavors to offer its employees varied career paths and opportunities, in particular by encouraging transfers among subsidiaries and businesses and by developing their capabilities. In this way, the Group supports the personal development of every employee, provides opportunities for promotion and transfer and is actively broadening the diversity of its teams.

Total headcount and employees by region, gender and age

Data in this section concern all of the companies that are at least 50%-owned by the Group. They describe how the workforce breaks down by various criteria and how the Group manages its human capital.

Every reporting company considers as an employee, any person hired under an employment contract. The number of employees, which does not include interns or temporary workers, is calculated on a headcount basis, regardless of working hours.

For further details on the methods used to collect and calculate this data and their possible limitations, please see the methodological note in section 4.5 of this chapter.

TOTAL HEADCOUNT OVER THE PAST THREE YEARS BY REGION

	31 December 2018	31 December 2017	31 December 2016
GROUP TOTAL	**20,010**	**19,779**	**19,637**
France	7,193	7,144	7,145
Europe (excluding France)	3,904	3,936	3,838
North America	3,880	3,742	3,694
Asia	4,195	4,104	4,061
Rest of the world	838	853	899
Of which permanent [1]	19,301	18,701	18,607
Of which fixed-term	709	1,078	1,030

(1) See the methodological note in section 4.5 of this chapter.

There was no significant change in scope in 2018. That being said, the Group did acquire XL Brands in January 2018, the industrial adhesives business of Nitta Gelatin Inc. (Japan) in August and Afinitica in October. The Group's headcount increased slightly (by 1.2%) on the 2017 level, and the proportion of employees on permanent employment contracts rose to 96.5% of the total workforce. The breakdown of Arkema employees by region was stable over the period.

HEADCOUNT BY REGION AND GENDER

Men accounted for 74.7% of the total workforce in 2018. The proportion of women was steady or slightly higher, across all regions.

	Male			Female		
(as a %)	2018	2017	2016	2018	2017	2016
France	73.1%	73.4%	74.0%	26.9%	26.6%	26.0%
Europe (excluding France)	74.8%	75.2%	75.5%	25.2%	24.8%	24.5%
North America	77.1%	77.7%	78.2%	22.9%	22.3%	21.8%
Asia	74.6%	74.6%	74.3%	25.4%	25.4%	25.7%
Rest of the world	78.2%	78.3%	79.0%	21.8%	21.7%	21.0%

The fact that the majority of employees are men reflects the high percentage of jobs traditionally held by men in non-managerial positions (supervisors and operators), who account for 72.7% of the workforce.

Headcount by category and gender

At 31 December 2018, executives accounted for 27.3% of Group employees (compared with 26.9% in 2017). The percentage of managers has risen slightly over the years.

Women accounted for 25.3% of the overall workforce and 29.6% of executives. The proportion of female executives continues to follow the slight upward trend observed in recent years.

HEADCOUNT BY AGE GROUP

Total headcount at 31 December	2018	2017	2016
GROUP TOTAL	**20,010**	**19,779**	**19,637**
Under 30 years	13.3%	13.8%	14.5%
30 to 39 years	26.3%	26.1%	26.0%
40 to 49 years	28.5%	28.7%	28.7%
50 to 59 years	25.9%	25.9%	25.9%
Over 60 years	6.0%	5.5%	4.9%

The proportion of employees aged 60 or over shows a slight rise, chiefly owing to the trend toward higher retirement ages in most countries. On the contrary, the proportion of employees aged under 30 shows a slight fall, reflecting a trend toward recruitment of experienced personnel.

HEADCOUNT BY AGE GROUP AND GENDER

(as a %)	Male	Female
Under 30 years	12.3%	16.1%
30 to 39 years	25.8%	28.1%
40 to 49 years	29.0%	26.8%
50 to 59 years	26.7%	23.8%
Over 60 years	6.2%	5.2%

The breakdown by age group is typical of the chemicals industry. The preponderance of employees over 30 reflects the fact that, compared to other industries, both managers and non-managers spend a longer time in professional education and training. This means that Arkema can build its growth on well-trained, experienced employees. Adapted to each Business Line and applied in all countries, the Group's human resources policies are also designed to ensure that, over time, this expertise is transferred to a new generation of employees. However, the high proportion of employees over 50 is prompting the Group to address the foreseeable departure of nearly a quarter of its current workforce over the next ten years, by leveraging its hiring and career management policies to gradually replace them.

Recruitments and departures

The Group's recruitment policies are designed to attract talented, highly skilled individuals to support its growth.

In keeping with its founding values of simplicity, solidarity, performance and accountability, Arkema attaches a great deal of importance to finding applicants with cultural awareness, teamwork skills, a solutions-driven approach and an entrepreneurial spirit.

To change preconceptions about chemicals industry professions and attract new profiles, Arkema developed a new employer brand in 2018. The new brand will gradually be rolled out in 2019 via various communication channels, including the website's Careers pages, social media, career fair stands and billboards.

Proactively attracting talented young graduates

In order to continuously improve the recruitment and hiring process, the Group nurtures special relationships with the best educational and training institutions for all its professions.

IN FRANCE

The Group takes an active approach to relations with academic institutions. In 2018, 80 initiatives were carried out to promote the Group among its target schools. They included Arkema's participation in more than 20 career fairs and the organization of two site tours for students and more than ten showroom visits to present the Group and its products to those responsible for relations with the business community.

These initiatives help promote the Group and its professions to the students of general engineering schools, chemical engineering schools, business schools, and technical schools in the fields of safety and maintenance.

New partnerships have also been forged with target institutions, including:

- a partnership with *Collège des Ingénieurs* for the hosting of students;
- a three-year partnership with *Chimie Paris Tech* students set to graduate in 2021, with more than a dozen initiatives planned each year;

- a "Discovery" partnership with *Central Supélec* that covers six initiatives scheduled for 2019; and
  - a partnership with the Sciences Po School of Management and Innovation, signed in September 2018, which aims to strengthen students' awareness of Arkema, notably through its participation in school events and projects.

In line with its policy of maintaining relations with academic institutions but also to further its research in the area of advanced materials, Arkema has forged a partnership with the *École polytechnique* engineering school and its foundation, in the form of a research and teaching chair on the design and modeling of innovative materials. This will enable Arkema to host doctoral students and develop targeted R&D programs with the school.

Each year, the Group offers numerous opportunities for internships, apprenticeships, doctoral research positions and jobs under France's International Volunteers in Business (IVB) program. Arkema had a total of 21 IVB program participants in 2018, of which nine joined during the year. The Group aims to further broaden these international opportunities by offering students from partner schools the possibility to intern abroad. Final-year internships, IVB contracts and doctoral research projects are managed at the corporate level to monitor the future recruitment pool more effectively. In addition, Arkema invested in 2018 in talent programs that give young graduates the opportunity to take on business-related positions that offer international exposure.

Another major objective in France is to develop apprenticeship training, whose participants represent an important source of new hires. The identification of apprenticeship candidates has been strengthened for both technician and engineering profiles. Participants are systematically assessed and the candidates who correspond to the Group's expectations are invited for an interview, which may result in a short- or medium-term contract. Students on work-study programs accounted for 3.8% of the workforce in 2018.

The 2018 "Happy Trainees" satisfaction survey, which enables interns and apprenticeship participants to provide feedback on their experience within a company, showed a recommendation rate of 94% for Arkema and a response rate of 60%, with Arkema ranking among the Top 10 this year in the list of companies preferred by students.

IN THE UNITED STATES

Arkema Inc. nurtures close relations with universities whose students can meet the Group's hiring needs. In 2018, for example, a series of meetings was organized between Arkema Inc. researchers/engineers and students from MIT, Pennsylvania State University, the University of Massachusetts and Cornell University. Two research positions were filled as a result of these meetings. Similar events were also organized with Drexel University, Georgia Tech, Ohio State University, University of Kentucky and the University of Minnesota.

IN ASIA

Under the Campus 2018 program developed in China, seven meetings were held during the year, reaching a total of 1,734 students and resulting in the collection of 1,189 resumes. A total of 55 job offers were sent to target schools during the year and 30 students won awards during the innovation and entrepreneurship ceremony organized by Arkema.

RECRUITMENTS UNDER PERMANENT CONTRACTS BY REGION

In 2018, Arkema hired 1,833 people under permanent contracts, compared with 1,616 in 2017.

	2018	2017	2016*
GROUP TOTAL	**1,833**	**1,616**	**1,694**
France	393	364	295
Europe (excluding France)	252	254	186
North America	528	463	530
Asia	533	438	511
Rest of the world	127	97	172

* *Excluding Den Braven.*

The geographic distribution of recruitments shows that Asia and North America remain the most active regions, in line with the Group's expansion in Asia and the higher employee turnover in both regions.

RECRUITMENTS UNDER PERMANENT CONTRACTS BY REGION AND GENDER

Women accounted for 28.2% of new hires in 2018, steady year-on-year. As in 2017, this was higher than the proportion of women across the workforce as a whole (25.3%).

	Male			Female		
(as a %)	**2018**	**2017**	**2016***	**2018**	**2017**	**2016***
France	69.0%	65.1%	67.5%	31.0%	34.9%	32.5%
Europe (excluding France)	73.4%	66.5%	73.1%	26.6%	33.5%	26.9%
North America	70.1%	72.6%	76.0%	29.9%	27.4%	24.0%
Asia	75.4%	76.9%	78.3%	24.6%	23.1%	21.7%
Rest of the world	70.1%	79.4%	79.7%	29.9%	20.6%	20.3%

* *Excluding Den Braven.*

In 2018, 27.1% of recruitments concerned managerial positions, compared with 29.1% in 2017. This was slightly lower than the proportion of managers in the workforce as a whole (27.3%).

The percentage of women among managerial hires increased by 0.5 points in 2018, to 29.6% from 29.1% in 2017. These proportions are in line with the percentage of women among the applicants for Group jobs. The Group remains attentive to this indicator as part of its determination to gradually hire more women across the organization, as described in section 4.4.1.5 of this chapter.

RECRUITMENTS UNDER PERMANENT CONTRACTS BY AGE GROUP

Recruitment practices within the Group are designed to provide the skills and expertise that the technical, sales and administrative professions need. Recruitment of people under 40 represents 72.1% of the total, illustrating the initiatives in place to proactively respond to the wave of retirement departures projected over the next ten years.

Recruitments	2018	2017	2016*
GROUP TOTAL	**1,833**	**1,616**	**1,694**
Under 30 years	37.6%	38.5%	41.9%
30 to 39 years	34.5%	33.6%	33.8%
40 to 49 years	18.4%	18.5%	16.5%
50 to 59 years	8.7%	8.3%	7.4%
Over 60 years	0.8%	1.1%	0.4%

* *Excluding Den Braven.*

RECRUITMENTS UNDER PERMANENT CONTRACTS BY AGE GROUP AND GENDER

(as a %)	Male	Female
Under 30 years	36.0%	41.9%
30 to 39 years	36.1%	30.4%
40 to 49 years	17.9%	19.6%
50 to 59 years	9.1%	7.6%
Over 60 years	0.9%	0.5%

DEPARTURES OF EMPLOYEES UNDER PERMANENT CONTRACTS

In 2018, the Group recorded 1,852 departures of permanent employees, versus 1,705 in 2017, which break down as follows:

	France	Europe (excluding France)	North America	Asia	Rest of the world	Total
TOTAL DEPARTURES OF PERMANENT EMPLOYEES	**352**	**399**	**447**	**500**	**154**	**1,852**
Of which resignations	82	218	262	400	42	1,004
Of which dismissals	35	98	53	39	97	322

RESIGNATIONS OF PERMANENT EMPLOYEES

The following table shows employee turnover, defined as resignations as a percentage of the total workforce, for 2018, 2017 and 2016.

	2018	2017	2016*
Resignations	1,004	862	866
Turnover	5.2%	4.6%	4.7%

* *Excluding Den Braven.*

Turnover by region and global turnover were both within the industry average. It has risen over the past few years as a result of Arkema consolidating specialty businesses in sectors and geographical regions (mainly Asia and the United States) where turnover is higher.

Organization of working time

In every country, working hours at Arkema comply with local legislation and business practices.

Work is organized within the Group so as to provide for full-time positions. Part-time employees accounted for 3.7% of the total workforce at 31 December 2018, as in 2017. In the majority of cases, these employees have chosen to work part time.

Given the specific features of the Group's industrial operations, some employee categories may work on continuous, discontinuous or semi-continuous shifts.

In response to a sudden demand increase or unusual difficulties, the Group may make use of fixed-term employment contracts, overtime, subcontractors or temporary employment agencies, in compliance with local legislation and depending on the local labor market.

Any overtime worked results in compensatory time off and/or pay, in compliance with the regulations applicable in each country.

Initially implemented at the Group's head offices in the United States and France, teleworking, which helps improve employees' quality of life, has now been extended to certain positions at industrial sites in France.

Absenteeism

Absenteeism, which includes sickness, accident and maternity leave, as well as strikes and unpaid leave, is presented in the following table:

	2018	2017	2016*
Percentage of hours of absence (excluding authorized leave)/ number of hours worked	3.9	3.9	3.7

* *Excluding Den Braven.*

The following table presents the percentage of hours of medical leave:

	2018	2017	2016*
Percentage of hours of medical leave/number of hours worked	2.7	2.8	2.6

* *Excluding Den Braven.*

The absenteeism rate is steady with respect to 2017, in line with the average 3.5% to 4.5% across the global manufacturing industry.

Compensation and changes in compensation

Total payroll costs for 2018 and previous years are presented in note 25 to the consolidated financial statements, in section 5.3.3 of this document.

A key component of the Group's human resources policies, total compensation is designed to recognize and equitably reward each employee's contribution to Arkema's success.

The compensation structure comprises a fixed base salary, an individual bonus and a collective bonus, which are applied differently depending on the position and the country. This structure fulfills a number of objectives:

- compensate individual and collective performance;
- enhance each employee's awareness of his or her responsibilities and involve everyone in meeting objectives;
- offer fair compensation consistently across the organization; and
- manage costs.

The compensation structure is regularly benchmarked.

35% of employees receive some form of individual bonus, the amount of which depends on their fulfillment of personal objectives and their contribution to the collective performance of a business, a country organization or the Group. A significant portion of their bonus depends on safety or other CSR objectives.

68% of employees are eligible for some form of collective bonus, which gives them a stake in the Group's expansion and financial performance. This is the case for the incentive and profit-sharing schemes in effect in France.

All employees benefit from minimum compensation guarantees. In addition, Group companies regularly perform benchmarking studies, keeping them in line with standard chemical industry practices.

Employees are paid on time, in full and without any deductions.

Employees may also receive various forms of long-term or deferred compensation, such as performance shares and employee share ownership plans.

Employee share ownership

Since its creation, Arkema has encouraged employee share ownership, with plans offered every two years in the Group's main host countries to enable employees to purchase Company shares on preferential terms.

The participation rate has increased over time to an average of 41% (close to 70% in France and 25% in other countries) and the average amount invested by employees reached €5,950 in 2018. These figures reflect the employees' engagement and their confidence in the Group's development.

As a result, 5.9% of outstanding shares were owned by employees at 31 December 2018, collectively making them one of the Company's leading shareholders.

For further details, see section 6.2.7 of this document.

Performance shares

Performance shares are granted, as decided each year by the Board of Directors, to executives and employees who have demonstrated remarkable performance or whom the Group wishes to incentivize and involve more closely in its long-term development. In 2018, performance shares were granted to some 1,500 beneficiaries, representing 7.3% of the total headcount.

For more information, please refer to section 3.5, section 6.2.6 and note 27 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this document.

Pension, health and welfare benefits

In most countries in which the Group operates, employees are covered by mandatory public schemes addressing risks related to death, disability, work incapacity, pensions and healthcare costs.

In addition to this statutory coverage, Group entities in France and abroad are responsible for implementing and updating health, welfare and employee benefit schemes, with a preference for defined contribution plans, in compliance with the approved annual budgets and in line with local requirements and practices. Nearly 92% of Group employees thus receive supplementary life cover and 90% supplementary disability cover.

4.4.1.3 TRAINING AND PERSONAL DEVELOPMENT

Arkema is committed to fostering a workplace environment that encourages the personal and professional development of its employees and to offering resources that help them to effectively meet this objective and improve their performance.

Around the world, annual performance reviews provide one-on-one opportunities for employees and managers to review the past year, set objectives for the coming year and discuss the employee's desired career path. They also review the training completed over the year and determine the further training needed to improve the employee's expertise and capabilities. Performance reviews are conducted for every employee, regardless of category.

In all, 98.7% of Group employees benefit from annual performance reviews.

In addition, meetings with career managers provide an opportunity to review the employee's career path, their expectations and how they could advance their career in other Group professions.

Training policy

Professional training concerns all employees regardless of their job, level of responsibility or age. It enables everyone to develop or acquire the skills needed to hold a position, move to a new position and fulfill the Company's expectations in terms of technical expertise or management practices. This is why the Group has reaffirmed its desire to provide every employee with access to lifelong learning in the course of their career at Arkema.

Training hours are reported for companies at least 50%-owned by the Group and employing more than 60 people, corresponding to 92% of the total workforce.

NUMBER OF TRAINING HOURS (EXCLUDING E-LEARNING)

	2018	2017	2016*
Total number of training hours, Group-wide	**456,798**	**484,578**	**464,706**
Training hours per employee per year	25	25	27
Number of employees having attended at least one course	17,111	16,161	16,256
Percentage of employees having attended at least one course during the year	92.7	85.0	94.7

* *Excluding Den Braven.*

Employees continued to benefit from a significant level of training in 2018, with an average of 25 training hours per employee. The figures for 2017 and 2016 were particularly high due to the deployment of the global Safety Academy program.

Arkema seeks to offer training that meets the needs of the Company and its employees. It also strives to ensure the relevance and effectiveness of the training provided, in order to optimize the time and money invested.

In France, the quality of training modules is assessed via questionnaires that are completed by participants at the end of each session, which are then used to generate feed-back reports.

In addition to these quality assessments, certain training modules include checks to ensure that participants are able to put their new skills into practice on their own. For example, production line operator training is carried out in stages under a formal process that covers both the program content and subsequent validation of results. This ensures a real ramp-up of skills and performance, allowing employees to access promotions and internal mobility opportunities, and enabling the Group to develop employee loyalty and heighten performance. This approach also meets the standards required by the Group's management system.

Training programs can culminate in job progression or rises in grade or coefficient that are conducive to career advancement.

NUMBER OF EMPLOYEES HAVING TAKEN AN E-LEARNING COURSE

Arkema's development of digital tools for use by employees resulted, very early on, in the expansion of its training offer to include easy-to-use e-learning modules, particularly for courses on safety and corporate subjects. The expanding curriculum currently consists of more than 25 modules in French and English and sometimes in Chinese, German or Italian, depending on the course. One reason for their growing popularity is the ease of enrollment, given that almost every employee has a log-in and access to a computer.

	2018	2017	2016*
Number of employees having taken an e-learning course	15,042	10,496	9,298
Percentage of employees having taken at least one e-learning course during the year	81	55	54

* *Excluding Den Braven.*

E-learning courses took a major step forward in 2018, driven by employees' rising familiarity with this training method, the arrival of new e-learning content, and more extensive communications on e-learning.

After the deployment of the "Code of Conduct and Business Ethics" module, a new "Anti-corruption" training module was developed and rolled out worldwide, to enhance employee awareness of this issue.

Furthermore, the new e-learning module management system, Elearnings LMS, in use in Europe since 2017, has brought improved learner management and more precise statistics.

Special professional training programs for employees

The Group's training policies are especially designed to improve employee skills in the areas of health, safety, the environment, its businesses and management.

The following international programs have been set up:

- the Isafe program on cyber-security awareness has been deployed in all countries through a network of correspondents;
- the Arkema Executive program is run every two years with an internationally recognized management school, in the form of a ten-day training session for employees from different parts of the world, capable of taking on positions of responsibility within the Group. The aim is to provide participants with the resources necessary to develop their skills as future leaders. In 2018, 36 managers participated in the program;
- a leadership development program was created and rolled out in Asia and Europe in 2017. The two new programs, together with the existing Cornell Leadership Program in the United States, form the Arkema Leadership Academy. Five sessions have been run since 2017: three in Europe and two in Asia, reaching 126 managers in total;
- the SMART program dedicated to operational excellence, which is being rolled out at ten pilot sites in the United States and Europe. The program is part of a strategy to leverage input from employees in the field to resolve problems or improve team efficiency;
- the Sales Academy, which was set up in early 2018 to support sales teams worldwide through changes to the Group's sales strategy and the implementation of a Customer Relationship Management (CRM) tool;
- a Supply Chain Academy was founded in 2018, initially addressing managers. The syllabus, on development of the supply-chain function, helps managers to build new skills and identify good practices and the upgrades needed in their community. It fits in with Arkema's program addressing global supply-chain strategic objectives. The first training sessions were provided to teams in Europe and are scheduled for rollout in Asia and the United States in 2019; and
- a Top Executive Academy was formed in 2018 for executives, scheduled to be rolled out in 2019. This is based on internal and external master classes on negotiation, internal control, international business, talent management, innovation, legal affairs, digital technologies, CSR, leadership, and finance.

In France, a special initiative has been undertaken in recent years to expand the management training curriculum and to add the following courses to the "Managers' Passport" induction training program:

- managing psychosocial risks and quality of work life;
- working together internationally;
- communicating one-on-one: realignment meetings, annual performance reviews, job interviews;
- communicating interpersonally; and
- reviewing management practices in accordance with the Arkema Management Way.

To enhance diversity and more particularly increase the number of women in senior management positions, Arkema France has developed two training programs presented in detail in section 4.4.1.5 of this chapter.

Career management

Talent management, a cornerstone of the Group's human resources development policy, aims to diversify the experience that employees acquire along their career paths and thereby cultivate new skills, this being an essential factor in the Group's development.

This process therefore focuses on both:

- ensuring that the Group has the expertise it needs to secure its successful development, today and over the medium term; and
- helping employees build their careers, thereby enabling them to increase their skills and realize their career goals based on the potential and opportunities available within the Group.

The employee career management process is handled:

- at the corporate level for managers in France and grade 15 jobs and higher internationally; and
- by the career managers network in each country or facility for operational, administrative, technical and supervisory employees.

Talent management policies are based on the same principles regardless of employee category, country, age or gender, as follows:

- providing each employee with the resources and support he or she needs to manage every phase in his or her career;
- leading a proactive promotion-from-within policy;
- identifying and developing high-potential individuals to encourage them to take on greater responsibilities and support career development;
- encouraging mobility between subsidiaries and geographical areas; and
- enabling every employee to move up in the organization and enrich his or her experience and skills, while ensuring organizational flexibility.

A career development program has been rolled out Group-wide based on feedback to participants after their self-assessment has been compared with those of their manager and their manager's manager. This system provides input for preparing personalized action and improvement plans involving coaching, new experience and training.

The SuccessFactors tool, originally developed to meet the needs of Arkema Inc., was rolled out across the Group in 2018. It now includes the United States, Asia and Europe and covers close to 80% of the Group scope, providing access to a global database and enabling HR processes to be managed at Group level.

International experience

Arkema, which mainly operates in Europe, North America and Asia, is actively pursuing an international job mobility policy designed to ensure that it has the skills and capabilities it needs at all its sites, and to broaden employee skills by offering them opportunities to work in different environments.

This policy is being applied through five programs aligned with the different international mobility objectives.

Expertise

This program enables employees who are contributing to implement strategic Group projects in a country where the requisite skills are not yet available to gradually transfer those capabilities to local employees.

Development

This program concerns employees who are going to take up a position in their area of expertise for a set period (on average three years) in a country where similar capabilities exist locally, with the goal of broadening their skills and returning home with their newly acquired experience.

International

This program is for employees whose career is exclusively international, with no further reference to their country of origin.

Expatriation in Europe

This program enables French employees to work on strategic projects or develop their careers in another European country.

Talent Program

Introduced in 2016, this new program offers an international experience to talented junior employees identified after being hired for an initial position or completing an IVB contract with the Group.

On average, only around 80 employees are working as expatriates, reflecting the Group's priority focus on hiring locally whenever possible, including for executive or high responsibility positions.

4.4.1.4 CONSULTATION AND DIALOGUE

The Group respects the fundamental freedoms of its employees, such as the freedom of association and expression, protects their personal data and respects their privacy, as defined in its Code of Conduct and Business Ethics.

Among the fundamental principles and rights at work, the right to freedom of association and to collective bargaining is a vector of social progress that the Group encourages wherever it operates.

Accordingly, in addition to complying with host country legislation, the Group facilitates employee representation in order to support suitable collective bargaining processes. In countries where the law does not provide for employee representation, specific bodies can be set up locally. A consultation and dialogue structure has been implemented at the European level with the European Works Council.

Lastly, the Group strives to develop two-way feedback and consultation with employees, either directly in the form of surveys or via employee representatives.

The social dialogue organization

As part of its employee relations policy, the Group fosters ongoing dialogue with employee representatives in every entity, in accordance with local cultural norms and legislation.

At the European level

The social dialogue body is the 26-member European Works Council, which holds a one-day plenary meeting every six months to discuss issues within its remit, including:

- business issues: market trends, commercial situation, activity level, main strategic priorities, growth outlook and objectives;
- financial issues: review of the consolidated financial statements, annual report and investments;
- labor issues: human resources policy and the employment situation and outlook;
- environmental issues: Group policy and emerging European regulations; and
- organizational issues: significant changes in the Group's organization, developments in the businesses and the creation or termination of operations affecting at least two European Union countries.

In 2018, two plenary sessions were held on 30-31 March and 26-27 October at the Arkema head office.

In the United States

Employees at unionized facilities are covered by collective bargaining agreements negotiated with local and national trade unions for an average period of three years. They deal with such issues as compensation, the safety of people and processes, and quality of work life.

In China

The first Employee Representatives Congress of Arkema China Investment Co. Ltd, the Group's main local subsidiary, was elected in late 2007 and began operations in January 2008. It currently has 34 members. The ERC has a broad remit, ranging from pay negotiations to safety and training. It complements the labor unions already in place at the Group's local production plants.

Around the world, a high percentage of employees were represented by elected bodies or unions in 2018, as shown in the following table.

PERCENTAGE OF EMPLOYEES REPRESENTED BY ELECTED BODIES AND/OR UNIONS, BY REGION

	2018*
GROUP TOTAL	**90%**
France	100%
Europe (excluding France)	90%
North America	77%
Asia	84%
Rest of the world	100%

* *Data corresponding to companies employing more than 60 people in which the Group has at least a 50% interest, which accounts for 92% of the total workforce*

Direct dialogue with employees

The Group is committed to developing two-way feedback and consultation with its employees, either directly in the form of internal surveys or via employee representatives.

Internal surveys are carried out in particular to assess employee satisfaction and engagement and to identify appropriate action plans.

In 2018, Arkema conducted an employee opinion survey among its teams in the main European countries, excluding Bostik. Covering 70% of the Group's workforce in Europe, the survey focused on three main themes: daily work life, support from Arkema, and relations between Arkema and the employee. The response rate was 60%, representing a very satisfactory level of coverage.

Results are very good, as seen with the Net Promoter Score (NPS) of 20, a very high score that reflects Arkema employees' attachment to the Company. The NPS is the most commonly used employee satisfaction indicator, measuring how likely employees are to recommend their Company to others.

The findings are analyzed in detail for each entity and shared with employees, and will be used to prepare action plans in 2019. The survey will be carried out periodically to provide a picture of how the situation evolves and improves over time.

Similar employee surveys are regularly conducted in the Group's other regions (United States, China, United Kingdom, France, Europe), with an average response rate of 70% in the last two years.

As a result, 80% of Group employees have been able to express their opinions over the past three years.

Survey findings are shared and analyzed to draw up site-specific and cross-cutting action plans. Following the European survey in 2018, the Human Resources department is stepping up internal communications on career advancement to better address employees' expectations on this.

Collective agreements

Since the Group was founded, its collective bargaining policy has led to the signing of a wide range of agreements in each facility or company.

In France, some agreements are Group-wide and therefore applicable to every Group company in the country, while others have been negotiated only for a given company or facility.

In other countries, collective bargaining procedures are aligned with national employee representation practices and legislation.

Negotiations are designed to raise the social status of employees in correlation with the Group's development and with the macroeconomic and legal environment. In 2018, negotiations notably related to the creation in 2019 of a Social and Economic Committee for the Group's companies in France.

Collective agreements have a positive impact on working conditions, as illustrated in France by the measures taken in favor of people with disabilities (see section 4.4.1.5 of this chapter), the agreement signed in 2017 on employees' right to disconnect, and the renewed teleworking agreement, which was extended in 2018 to include certain positions at industrial sites.

4.4.1.5 DIVERSITY, EQUAL OPPORTUNITY AND EQUAL TREATMENT

As part of its policy of non-discrimination, workplace equality and diversity, the Group commits to promote the elimination of all forms of discrimination in its operations, encourage diversity as a valuable asset in its global business and hire people solely on the basis of its needs and each applicant's personal qualities, as defined in its Code of Conduct and Business Ethics and its human resources policy memo.

Workplace equality is one of the major priorities of the Group's human resources policy, along with the prevention of discrimination in general. Special attention is given to ensure gender equality in the workplace, facilitate the integration of employees with a disability and prevent discrimination on the basis of age or nationality. Measures put in place to ensure equal opportunity and obtain quantifiable results include:

- a program that periodically revises job descriptions to ensure that they are non-discriminatory and consistent across each profession, with a particular focus on accurately describing the related tasks and responsibilities. In addition, the positions, job titles and requisite profiles are reviewed once a year, department by department; and
- recruitment policies based on the sole criterion of suitability for the job. In the United States, for example, Arkema Inc. gives training to people involved in the recruitment and hiring process, provides them with job descriptions and applicant profiles, and remedies any situation where there is a significant underrepresentation of minorities or women in the workforce. In France, human resources managers receive training on the prevention of discrimination during the recruitment process.

Diversity is an important issue for the Group and a powerful lever for driving team performance and attracting the finest talent. It is also a way for the Group to enhance its employer brand image. Arkema has therefore set two diversity objectives, to increase the percentage of women and of non-French nationals in senior management and executive positions. Details of these objectives are provided below.

Measures to foster international diversity

In every country and region where Arkema operates, it is committed to developing local skills and capabilities, with a preference for hiring local personnel at every level of the business, including top management. The Group also offers career opportunities abroad. Several expatriation programs have been designed, including the recent "Talent Program" for the most junior employees.

Encouraging the presence of non-French executives was also an important issue identified during the 2016 materiality assessment. The Group has therefore set the following target for 2025:

2025 TARGET

42% to 45% of senior management and executive positions to be held by non-French nationals.

In 2018, 39% of senior managers were non-French nationals, compared to 37% in 2017.

To help meet these objectives, international diversity is integrated into the recruitment process. Training is also offered to managers on "working in an intercultural environment" to foster healthy working relationships in a context of international diversity.

Measures to promote gender equality

Arkema ensures that women enjoy the same career development opportunities as their male counterparts. In recent years, a policy of gender equality and equal pay has been deployed, with initiatives in the following four areas:

- strengthening the principle of non-discrimination in the hiring process;
- ensuring equal pay for equal work;
- encouraging and facilitating career development; and
- taking parenthood into account in the career management process.

The second diversity objective set for the human capital aspects of the CSR process concerns promoting women to executive positions, where the proportion of women needs to increase. This issue was also identified during the materiality assessment performed in 2016. An action plan has been put in place to encourage female talent. Today, nearly 30% of middle managers are women, who therefore represent a promising source for meeting the 2025 target. The action plan involves:

- raising awareness among managers by introducing a "Managing in a Diverse Environment" training module and by integrating diversity into existing training modules. Rolled out from 2018, these training initiatives are initially aimed at mid-level managers but will ultimately be extended to the entire management chain;
- introducing career workshops designed in particular to encourage women to maintain their career goals. The workshops were introduced in 2018 and provide a forum for managers seeking to reflect on their career paths;
- identifying women in key positions in other businesses or organizations to create a pool of female talent for future recruitment needs; and
- carrying out communication and awareness campaigns within the Group.

2025 TARGET

23% to 25% of senior management and executive positions to be held by women.

5 GENDER EQUALITY

In 2018, women accounted for 21% of all senior managers and executives across the Group, compared with 19% in 2017. The change is primarily the result of the support program introduced in 2016 to promote equal opportunity and gender diversity. This figure is consistent with the average 0.5% a year increase required to meet the 2025 target.

Senior managers and executives account for about 10% of managerial personnel. Women account for 21% of personnel in the top 10% of positions of responsibility.

In France

In 2018, Arkema France signed an agreement on gender equality and diversity, covering such issues as hiring and integration, compensation and promotions, access to training and work/life balance.

In 2018, the Group continued to strengthen its policy of hiring and promoting women. Practical initiatives have been deployed, in particular the expansion of a mentoring program run by senior Group executives to help women move into positions of responsibility. Over the past two years, around 40 women have benefited from the program, which is set to continue during 2019. Networks have also been set up in the regions to provide support for initiatives aimed at boosting women's careers.

To lead the entire process, a Diversity Steering Committee comprising business Managing Directors and corporate Vice-Presidents was formed in 2016, with the goal of approving and recommending initiatives to support gender diversity.

In the United States

Arkema Inc. has prepared an action plan supporting workplace equality and equal pay for all employees and job applicants, with similar qualifications, regardless of race, ethnicity, national origin, religion or gender. The plan, which is specific to each facility, is updated every year.

In addition, to support the objectives set by the Group, an action plan has been implemented involving:

- cross-disciplinary actions: the integration of diversity into existing management programs and the creation of a training offer dedicated to diversity management; initiatives to help employees work on their career goals; communication initiatives promoting access for women to industrial professions; and
- profession-specific actions: definition of targeted actions to support the hiring and promotion of women, based on the assessment carried out for each profession.

Measures to promote the recruitment of people with disabilities

One of the flagship commitments of the Group's disability policy is to hire and maintain the employability of people with disabilities, through dedicated training programs and workstation modifications. In addition, the Group's recruitment procedures make it possible to offer disabled talents various job opportunities.

The following sections describe the measures taken in France that illustrate the approach taken by the Group. For the other regions, similar measures have been implemented taking into account local conditions and legislation.

At the end of 2018, disabled employees accounted for 4.1% of the Group's workforce in France.

A new, four-year agreement was signed by Arkema France in 2017 reaffirming the Group's commitment to hiring, integrating, training and retaining disabled employees, raising awareness of the issue and increasing the use of social enterprises and work centers. The agreement includes the following objectives: hire the equivalent of 60 employees with a disability over four years and increase the amount spent on social enterprises and work centers by 21%. At end-2018, Arkema France had hired 73 people with a disability (all contract types combined) and increased the sales generated by working with social enterprises and work centers by 20%.

In addition, actions in favor of people with a disability have been pursued and strengthened in the following areas:

- retention: performing a wide variety of workstation ergonomic studies, installing appropriate upgrades, training nurses in ergonomics, developing a network of correspondents, organizing meetings for disabled employment coordinators, analyzing site practices in the area of retention;
- hiring and integration: maintaining relations with certain partners such as the Club House, which promotes the integration of people with a disability; forging a partnership with Salto to promote disabled access to internships and apprenticeships; carrying out a feasibility study of setting up an operator job certification program in southwestern France;
- increasing the use of social enterprises and work centers: integration into nation-wide tenders in such areas as translation and digitization;
- communication and awareness training: continuing to raise employee and manager awareness through local initiatives and corporate information.

In the United States, to encourage diversity in hiring, Arkema Inc. vacancies for outside applicants are posted on job search sites designed for people with a disability and emailed to local community organizations that help people with a disability find employment.

Measures to hire and retain seniors

In France, the issue of recruiting and retaining seniors is included in the strategic workforce planning (SWP) agreement. Under the agreement, which defined "seniors" as people over 50 years old, the Group pledged to undertake initiatives in the following areas:

- a recruitment target of 10% of permanent contracts for people aged 50 and over;
- retaining senior employees;
- supporting career-endings;
- transitioning to retirement; and
- knowledge transfer.

In 2018, people aged 50 or more accounted for close to 10% (37 out of 393) of those hired under permanent contracts in France.

4.4.2 Compliance and ethics

The Group places great importance on conducting its business in line with the principles and rules on ethics, integrity and compliance. Failure to respect this commitment would expose the Group to legal or reputational risks.

Arkema therefore complies with prevailing laws, regulations and best business practices. In its choice of industrial and business partners, Arkema favors those that respect its social commitments.

In addition to complying with international conventions and host country legislation, Arkema is committed to complying with competition rules and to rejecting all forms of corruption and fraud. It also condemns and works to prevent fraud and corruption in business transactions with its partners.

Arkema takes care to comply with the tax regulations in all the countries in which it operates, while minimizing its tax burden. It also condemns and works to prevent all forms of tax evasion. The Group's Tax department therefore calls on reputed external consultants whenever necessary and ensures that Arkema's transfer pricing policy is regularly updated. It also oversees the implementation of any corrective measures required in the event of a tax audit.

In 2018, the Group adopted an anti-corruption charter, implemented a whistleblowing system and updated its Code of Conduct and Business Ethics.

Arkema also makes sure it complies with all applicable national and international tax regulations, and adopts a transparent fiscal policy, especially as regards the need to counter tax evasion.

4.4.2.1 THE CODE OF CONDUCT AND BUSINESS ETHICS

The Group has a Code of Conduct and Business Ethics (also known simply as the "Code of Conduct") that sets out Arkema's four core values and describes the good business practices expected of all employees, based notably on the principles of the UN Global Compact.

It may be downloaded from the corporate website and covers the following main points:

- employees may not offer, provide or accept, directly or indirectly, any unfair advantage, be it pecuniary or otherwise, whose purpose is to secure business relations or any other business advantage. The counterparties concerned include people in positions of public authority, business intermediaries, customer employees and political parties;
- employees must scrupulously comply with all applicable rules relating to antitrust legislation in every country in which the Group operates; and
- employees must comply with import and export regulations.

4.4.2.2 PROCESSES FOR IDENTIFYING AND REDUCING THE RISKS OF ANTI-COMPETITIVE PRACTICES, CORRUPTION AND FRAUD

Arkema has put in place a compliance and business ethics program, whose cornerstone is the Code of Conduct. The compliance program mainly covers antitrust issues, export control and the fight against corruption. It defines and describes guidelines, procedures and risk management processes applicable throughout the Group.

To ensure that the program runs efficiently, the following resources have been implemented:

- training to build employee awareness of the need to comply with competition, export control and anti-corruption rules;
- a practical guide to competition covering rules and recommended behaviors issued to employees;
- the verification of business intermediaries prior to appointment, according to the business intermediary procedure, to minimize the risks of corruption-prone situations arising;

- systematic prior approval required for any export to countries subject to commercial or financial restrictions, according to the export control procedure;
- e-learning modules on the Code of Conduct, anti-corruption and antitrust legislation (module scheduled for roll-out in 2019); and
- a compliance statement signed by all employees potentially exposed to these risks, attesting that they will abide by the Code of Conduct and comply with the procedures associated with it.

Application of the compliance program is overseen by the Compliance Committee. This committee, whose members are appointed by the Chairman and Chief Executive Officer and which reports to the Executive Committee, is made up of representatives from the following departments: Internal Audit and Internal Control, Human Resources, Sustainability, Industry Environmental Safety, Legal Affairs, Finance & Treasury, Taxation. It also includes a member of the Executive Committee.

It is responsible for monitoring compliance Group-wide in the following areas: antitrust laws, business intermediaries, fraud, business practices and integrity, work environment integrity and environmental stewardship. The Compliance Committee met four times in 2018.

For all practical questions regarding an ethical issue in general, and any problem in applying the Code of Conduct in particular, the Compliance Committee can be consulted either by executive management or by an employee.

In the various regions where the Group operates, the regional Vice-Presidents are appointed as correspondents to the Compliance Committee.

Lastly, as part of the global risk management process, the Internal Audit and Internal Control department regularly performs audits in the subsidiaries. These include an analysis of the management processes to help detect possible risks of fraud and to define, where appropriate, the necessary corrective measures. For more information on the global risk management process, see section 2.2 of this document.

4.4.2.3 IMPLEMENTATION OF THE SAPIN II LAW

In application of French Law no. 2016-1691 of 9 December 2016 relating to transparency, the fight against corruption and the modernization of the economy, known as the “Sapin II Law”, corruption risks have been mapped, as indicated in section 2.1.2 of this document, and are regularly updated so that the third-party verification process can be adapted if necessary.

In addition, an anti-corruption charter has been adopted and a whistleblowing system introduced as an extension of the Code of Conduct, which has itself been updated to take into account these new compliance tools. The Code of Conduct has gradually been integrated into the internal rules of the various entities located in France. This integration process was completed in September 2018. The anti-corruption charter and information about the whistleblowing system have been annexed to the internal rules of the aforementioned entities and sent to all Group employees, together with the Code of Conduct, in an email from the Chairman and Chief Executive Officer in October 2018.

The Code of Conduct and the anti-corruption charter both provide for disciplinary action in the event of a breach, the details of which are described in the internal rules of each entity. In 2018, one incident resulted in disciplinary action.

Classroom training is organized throughout the year for those most exposed to the risks of corruption and influence peddling. An e-learning module was introduced in November 2018 to supplement classroom training. It focuses specifically on the fight against corruption and is targeted primarily at employees most exposed to these risks.

The whistleblowing system enables any Group employee (or equivalent) or anyone working with the Group on an external or occasional basis (subcontractor, intermediary, supplier, customer) to report any suspected wrongdoing that might involve Arkema. The reports are handled, in the strictest confidentiality, by the Whistleblower Committee, which has now replaced the ethics mediator. The Whistleblower Committee, whose members are appointed by the Chairman and Chief Executive Officer, comprises representatives from the following departments: Internal Audit and Internal Control, Sustainable Development, Legal Affairs and Institutional Affairs.

The whistleblowing system supplements the disclosure mechanisms already available at certain subsidiaries.

A total of 14 reports were received in 2018, relating to topics other than corruption.

A major communication campaign regarding these various measures has stimulated discussions and enhanced employee awareness at all levels of the organization.

4.4.2.4 IMPLEMENTATION OF THE GENERAL DATA PROTECTION REGULATION (GDPR)

The GDPR compliance project is under way, under supervision by a data protection officer (DPO). A general review has been carried out to identify any additional measures that need to be taken.

The DPO also ensures the proper application of data protection laws and regulations issued by countries both inside and outside the European Union. The roll-out of the SuccessFactors tool, for example, was followed closely by the DPO to ensure that the issue of personal data protection was adequately addressed.

Similarly, input from the DPO was also required during the development of digital marketing tools intended for use in various countries.

4

4.4.3 Human rights

Arkema respects human rights and fundamental freedoms, as defined in the Universal Declaration of Human Rights, and makes them central to its activities. The Group therefore makes every effort to prevent human rights violations against its employees, partners and other stakeholders and to remedy any violations that do occur.

A Human Rights Policy setting out the Group's commitment in this area was published in 2018 and deployed by all entities.

Arkema's commitment is reflected in: its compliance with international standards and the applicable laws in the countries in which the Group operates; regular assessment of the risks that may be generated by the Group's activities; access to a whistleblowing system for both internal and external stakeholders; the implementation of corrective action when necessary; a policy of continuous improvement of the Company's practices through on-going process improvements and training initiatives; an assessment and dialogue program with suppliers and subcontractors, aimed at promoting respect for human rights; and transparent communication on the Group's efforts in this area.

The Group opposes all forms of forced labor, child labor, discrimination and harassment and upholds the fundamental rights of a decent minimum wage, health and safety, equal opportunities, respect for private life, freedom of association, the right to strike and the right to collective bargaining.

As a result, when preparing its duty of care plan in compliance with article L. 225-102-4 of the French Commercial Code, Arkema did not identify any serious risks of human rights violations.

The Group's vigilance in the area of human rights also applies across its value chain and more particularly to its suppliers and subcontractors. Human rights compliance is an integral part of the commitments expected of the Group's partners, expressed through their adherence to the Supplier Code of Conduct, as well as one of the criteria for assessing and managing suppliers. For further details, see section 4.4.4 of this chapter.

Awareness-raising initiatives are undertaken to enable employees, and particularly those in management positions, to respect and protect human rights in the performance of their duties. These awareness-raising initiatives are designed to give all employees a better understanding of the concept of human rights and enable them to apply the associated principles both internally and in their relations with third parties.

To meet stakeholder expectations, keep risk analyses up-to-date and remedy any violations, the Group leverages a number of resources:

- the integration of human rights issues into internal control checklists and internal audit assignments;
- an annual inventory of risks carried out across the Group's main entities by the Internal Audit and Internal Control department;
- continuous dialogue with local communities via the Common Ground® initiative; and
- a whistleblowing system for both internal and external stakeholders.

Arkema's Executive Committee is responsible for drawing up and disseminating the Group's Human Rights Policy, while the regional entities are tasked with its implementation, in compliance with the applicable laws and regulations. The CSR Steering Committee regularly takes stock of the situation, and risks relating to human rights fall within the scope of the Group's Risk Review Committee. The two committees comprise Executive Committee members, the heads of certain corporate departments, as well as managers involved in the Group's CSR policy and risk management process. The Sustainable Development Vice-President is a member of both committees and reports on the Group's CSR activity at least once every year to the Executive Committee, the Audit and Accounts Committee and the Board of Directors.

The Human Rights Policy highlights four areas that are monitored particularly closely:

- health, safety and security: programs, initiatives and results are presented in section 4.3.2 of this chapter. The progress made in 2018 confirms the validity of the Group's approach in this area;
- health and safety of customers and end users: programs and initiatives on responsible product management are presented in section 4.2.4 of this document;
- suppliers and subcontractors: programs, initiatives and results are presented in section 4.4.4 of this document. In 2018, the scope of supplier assessments increased significantly, and initiatives were undertaken with regard to the suppliers most at risk; and
- promotion of diversity and equal opportunity: programs and achievements are described in section 4.4.1.5 of this chapter.

4.4.4 Suppliers and subcontractors

Arkema is primarily involved in the transformation of raw materials and works with a large number of subcontractors and service providers. Poor performances by its suppliers in any area, including those related to social and environmental issues, could therefore have an impact on the Group's performance and on its ability to serve its customers.

The Group has integrated employee, environmental and social issues into its procurement process and strives to build long-term, balanced and sustainable relationships that are based on trust with its suppliers and subcontractors. These relationships are managed transparently and in accordance with negotiated contractual terms, including those related to intellectual property.

In support, the following resources have been deployed.

4.4.4.1 THE SUPPLIER CODE OF CONDUCT

The Group's responsible procurement process is guided by the ethical principles expressed in the Code of Conduct described in section 4.4.2 of this chapter. The Group has also signed the national inter-company charter of the French purchasing managers' organization and the state-sponsored inter-company mediation initiative (*Médiation inter-entreprises*), which is based on ten responsible procurement commitments. As part of this process, a dedicated Code of Conduct for suppliers summarizing all of the related CSR aspects has been issued and disseminated to all Group entities.

The Supplier Code of Conduct's guidelines particularly cover environmental stewardship and the quality and safety of supplied products and services. As part of the focus on business integrity and transparency, suppliers must comply with laws governing competition, corruption, conflicts of interest, confidentiality and the transparency and accuracy of reported information. The Code can be accessed on the Group's website.

When selecting a new supplier, the Group looks for the bid that offers the best combination of performance, cost and quality, while also taking into account the supplier's CSR performance. New suppliers are systematically informed of the Code's provisions.

4.4.4.2 RESPONSIBLE PROCUREMENT TRAINING AND AWARENESS

Group buyers are all trained to apply the Supplier Code of Conduct and the CSR performance assessment process, with regular follow-up meetings to inform and maintain awareness. In 2018, sessions presenting the Group's corporate social responsibility approach were held with the procurement departments in each region. They were followed up with reminders and discussions about implementing the Together for Sustainability supplier assessment initiative.

4.4.4.3 ASSESSMENTS BY THE THREE PROCUREMENT DEPARTMENTS

The Goods and Services Procurement department has introduced a pre-approval questionnaire for suppliers that includes corporate social responsibility components. In addition, it regularly assesses the employee safety performance of the leading contractors working on Group sites. As explained in section 4.3.2 of this chapter, the safety of contractor employees is considered just as important as that of Group personnel, and their incidents are recorded in the consolidated indicator.

Logistics services contracts are awarded on the basis of the provider's safety, security and environmental performance, while highway hazardous materials transporters are selected based on third-party assessments, such as the Safety and Quality Assessment System (SQAS) in Europe and the Road Safety and Quality Assessment System (RSQAS) in China. Similarly, vessels chartered worldwide for the bulk transportation of Group products are first vetted by a third party.

To assess raw materials suppliers, pre-approval questionnaires are used to assess their management system, compliance with the principles of the Responsible Care® program and certification to ISO-type standards.

FOCUS

SOCIAL PERFORMANCE AS A FACTOR IN SUPPLIER SELECTION

As in 2017 for "electrical" and "instrumentation" services, in 2018 Arkema assessed all its suppliers to Together for Substainability (see section 4.4.4.5) criteria in the categories "fire detection and firefighting" and "weighing", to ensure that CSR performance was factored in when selecting the best suppliers. In addition, a supplier audit plan will be produced in 2019.

As a producer of high performance materials made from renewable resources, Arkema is participating in the Pragati initiative, alongside industrial partners BASF and Jayant Agro-Organics Ltd. and NGO Solidaridad. Launched in Gujarat, India in 2016, the initiative aims to provide a framework for the sustainable production of castor beans by taking into account all of the related social, environmental and economic issues. To date, training has been provided to 2,700 farmers, of which 1,019 have been awarded official project certificates. The results so far have been very positive and notably include a better crop yield, improved health and safety conditions for farmers, and analyses of soil and water quality in 41 villages.

4.4.4.4 SUPPLIER AND PROCUREMENT PROCESS AUDITS

Under the Supplier Code of Conduct, suppliers agree to meet all of the Group's CSR expectations and to cooperate with its audits of their Code compliance.

Supply chain service providers, for example, are regularly audited through visits to transportation companies and outside warehouses and assessments of their performance. These audits are supported by third-party assessments, such as the Safety & Quality Assessment System (SQAS) for overland transportation, the Chemical Distribution Institute for maritime shipping, and the European Barge Inspection Scheme for river shipping.

In addition, every year, the Internal Audit and Internal Control department audits subsidiaries by conducting a range of tests on supplier approval and assessment processes and on the practices and risks associated with raw materials and goods and services procurement.

4.4.4.5 MEMBERSHIP OF THE TOGETHER FOR SUSTAINABILITY (TFS) INITIATIVE

To base its requirements on accepted standards and avoid the need for duplicate supplier assessment procedures, in 2014 the Group joined the Together for Sustainability (TfS) initiative, founded by six European chemical companies. This global program is designed to encourage social responsibility across the chemical industry service chain, and is based on the principles of the United Nations Global Compact and the Responsible Care® Global Charter. It enables member companies to share the findings of assessments or audits of the CSR performance of their suppliers or subcontractors conducted by Ecovadis or independent third parties. Ecovadis analyzes supplier documents and questionnaires on the basis of CSR criteria in line with international standards, and ensures a 360° watch on information reported by external stakeholders.

A procurement representative is specifically designated to lead the TfS drive within the Group. A TfS Steering Committee has been set up, bringing together representatives from the Procurement departments (Goods and Services/Logistics/Raw Materials) and the Sustainable Development department. It meets at least once each quarter and the issues discussed during its meetings are reported to the CSR Steering Committee and the Risk Review Committee.

At the end of 2018, more than 1,400 of the Group's suppliers and subcontractors had been assessed according to CSR criteria, compared to around 1,000 in 2017. Thanks to these assessments, the Group has identified certain suppliers or subcontractors whose CSR performance is below standard and has requested that they improve their practices in this area. The resulting initiatives are tracked over time by the Group's procurement teams in liaison with the suppliers and subcontractors in question. The results of these assessments are also taken into account by procurement teams during the supplier selection process.

In 2018, CSR scores had risen for 60% of suppliers whose assessments had been updated.

At-risk suppliers

In 2018, the Group's three Procurement departments defined criteria for identifying at-risk suppliers and subcontractors, which are those most likely to present a risk in terms of human rights, personal health and safety, corruption, or compliance with international labor and environmental standards. The criteria relate to the supplier's area of activity and its country of origin. The three departments organize the supplier assessment and audit process so that recurrent at-risk suppliers are systematically assessed and then contacted and audited if their assessment reveals unsatisfactory practices.

4.4.4.6 THE IMPACT OF SUBCONTRACTING

The Group subcontracts for two main purposes: for maintenance operations, and, to a very limited extent, for the production of certain finished products. Subcontracting therefore accounts for part of the €270 million in capital expenditure dedicated to safety, the environment and the maintenance of industrial units.

Under the Group's procurement policy, contractors are bound by the Supplier Code of Conduct and its general purchasing conditions.

4.4.5 Institutional initiatives

As a responsible chemicals producer, the Group interacts with public authorities in every country where it operates, in particular to contribute to the development of legal and regulatory frameworks that are favorable to the growth of its businesses, in full accordance with its values and social responsibility commitments. As part of this process, it may take part in public debate on issues directly related to its businesses, while maintaining a position of strict political neutrality.

These public initiatives fully comply with the lobbying rules in each host country. For example, Arkema has been entered in the European Union Transparency Register and has pledged to comply with the related Code of Conduct. Similarly, in France, Arkema is registered as a lobbyist in the national digital registry of lobbyists set up in 2017, which is managed by France's High Authority for Transparency in Public Life (HATVP).

The Group is also active in several business federations or associations, such as the French Association of Private Enterprises (AFEP) and France Industrie in France, and chemical industry trade associations, such as France Chimie in France, CEFIC in Europe, the American Chemistry Council in the United States, as well as the Association of International Chemical Manufacturers and the China Petroleum & Chemical Industry Federation in China. In addition, the Group is a member of around 50 specialized industry associations worldwide whose objectives are closely related to the activities of its Business Lines.

Employees in charge of institutional relations are responsible for monitoring public initiatives at the local, national or international level that may impact the Group and are tasked with defending or promoting the interests of the Group in this context. The priority issues addressed concern business competitiveness, both globally (*i.e.*, at Group level, such issues as taxation, particularly on output, payroll taxes, employment law, regulation in general, etc.) and locally (*i.e.*, at the plant level, such issues as health, safety and environmental legislation, and support for expansion projects and reorganizations), the energy and climate change transition, and the circular economy.

In the United States, Arkema Inc. files quarterly activity reports with both houses of Congress, as required under section 5 of the Lobbying Disclosure Act of 1995. Expenses reported for 2018, calculated according to the prescribed rules, amounted to around US$860,000. Two Arkema Inc. employees have been registered as lobbyists to Congress, particularly on the issue of refrigeration gases.

Worldwide, the Group paid €4.1 million in membership fees to general or specialized industry associations and €370,000 in consultants' fees for similar reasons, and recorded €1.2 million in related in-house expenses in 2018.

4.4.6 Corporate citizenship and philanthropy

In the 55 countries where it operates, the Group's business operations contribute to developing the local economy, by creating and maintaining direct and indirect jobs, developing local skills and expertise, purchasing local goods and services, forming business partnerships and paying taxes.

In particular, the Group focuses on hiring locally at every level of the business, including the senior management teams of its non-French subsidiaries. In this way, more than 80% of the executives at the main operating facilities outside France were hired locally.

As seen in this document, and particularly in chapter 5, the Group's economic contribution to surrounding communities covers many items (sales, capital expenditure, operating expenses, wages and salaries and payroll taxes, income and other business taxes, dividends, etc.), which go together to shape the Group's economic and social footprint.

In addition to contributing to the local economy, the Group deploys a policy of revitalizing regional labor markets and supporting scientific research upstream from industrial innovation.

Lastly, as a responsible company in an increasingly interconnected world, the Group is particularly attentive to the need to nurture close ties with all its stakeholders. Around the world, the Group is deploying local communication initiatives to foster high-quality relationships with host communities that are based on trust. This open dialogue also helps the Group to better understand the expectations of people living in nearby communities and ensure that they are properly addressed in its CSR strategy.

4.4.6.1 SUPPORTING LOCAL COMMUNITIES THROUGH INNOVATION

The Group has a policy of supporting innovative small and medium-sized enterprises (SMEs) in related business areas through joint projects and equity investments. Each research center, for example, works closely with neighboring schools or laboratories as part of clusters while creating possibilities for partnerships with local SMEs. The Group is a founding member of Axelera, a world-class competitiveness cluster in the field of chemistry and the environment that brings together and coordinates players from industry, research and education in the Auvergne Rhône-Alpes region in France.

These kinds of local partnerships contribute to stimulating innovation, while deepening the Group's local roots. For example, at the Lacq site in France, the Group provides technical and infrastructure support to innovative young businesses setting up in the Chemstart'up business incubator.

It is also positioned as a key early-stage player in strategically crucial industries such as thermoplastic composite materials, renewable raw materials and new energies.

Under its ambitious innovation policy, the Group maintains close ties with the scientific and educational ecosystems in its host regions worldwide, in particular through a wide variety of partnerships with universities and public and private research laboratories, such as the CNRS and the CEA in France. These partnerships, such as the ones in France with Compiègne

Technology University for the Smart House by Arkema and with Hydro Québec in Lacq, are described in section 1.1.5 of this document.

In 2016, Arkema opened an innovation center in South Korea within the Hanyang University in Seoul. The center is specialized in high performance polymers and renewable energies, areas in which the university excels. More recently, Arkema forged a partnership in 2018 with Monash University Malaysia, which is located just outside Kuala Lumpur. The aim is to enhance understanding of biocatalysis, a discipline that could lead to more efficient reaction processes than those achieved with traditional chemistry or the identification of alternatives to certain raw materials used in the production of sulfur products. The creation of this center for research into biocatalysis is in line with the Group's commitment to develop increasingly sustainable solutions.

The decision to join forces with a university in Asia reflects the Group's vision of partner-based research as a bridge between industry and academia.

4.4.6.2 CORPORATE CITIZENSHIP

As part of its commitment to societal issues, Arkema undertakes corporate sponsorship and philanthropy initiatives that are aligned with its CSR policy and values, particularly the value of solidarity, and focus primarily on education, integrating young people into active life, gender diversity and access to water. These initiatives are overseen at Group level by the Human Resources and Communication Executive Vice-President, who is a member of the Executive Committee. They are deployed worldwide and are supported at the local level by the Common Ground® initiative.

The Common Ground® initiative

Formalized and introduced over 15 years ago, the pioneering Common Ground® initiative takes community relations beyond the legal minimum requirements by actively encouraging local dialogue and exchange in every host country.

It is based on three key principles, designed to improve the social acceptability of chemical plants:

- **listening to understand expectations:** understanding the concerns of people living in nearby communities is key to effectively addressing their concerns about industrial and chemical risks;
- **engaging in dialogue and informing communities about the Group's activities:** at the core of the initiatives are workshops that enable neighbors to discover what the plant does, the products it makes and the processes it uses, and get a first-hand view of how the site runs and what its projects are; and
- **risk prevention and progressing:** in addition to continuously improving the health, safety and environmental performance of its production facilities, the Group is deploying a risk prevention culture in every host country. As part of this proactive approach, incident or accident drills are regularly organized to test emergency response resources and procedures, along with the systems for alerting, informing and protecting employees and the local community.

Operational implementation of the Common Ground® initiative is overseen by the Group's site managers.

Building better relations around the world

In 2018, 1,064 Common Ground® initiatives were carried out worldwide, with 84% of production plants actively participating. These initiatives break down by region as follows over the past three years:

NUMBER OF COMMON GROUND® INITIATIVES BY REGION

	2018	2017	2016*
GROUP TOTAL	**1,064**	**1,011**	**866**
Europe	421	359	328
North America	486	409	376
Asia	126	204	124
Rest of the world	31	39	38

* *Excluding Den Braven.*

In all, 73% of production plants took part in these initiatives in the United States, 73% in Europe, and 69% in Asia.

These initiatives are primarily aimed at local communities, academia and associations, as shown in the following breakdown over the past three years:

NUMBER OF COMMON GROUND® INITIATIVES BY STAKEHOLDER CATEGORY

	2018	2017	2016*
Local communities	252	379	334
Education	294	293	240
Associations	376	339	292

* *Excluding Den Braven.*

The number of Common Ground® initiatives rose from 1,011 in 2017 to 1,064 in 2018, primarily reflecting increased involvement by the Group's sites. Progress was made across all three stakeholder categories. In France, for example, the increase in educational initiatives stems from a partnership with the CGénial Foundation. The percentage of production plants taking part in the Common Ground® initiative decreased in 2018 owing to the recent integration of the Den Braven sites and other sites acquired in 2018. However, the program should be phased in across these new sites over time.

Initiatives involving local communities and the public

In 2018, around 68% of Group facilities conducted public tours, in particular to explain how chemistry offers solutions that can benefit everyone in their daily lives.

In the United States and Asia, many plants also take part in information meetings organized by local resident associations.

In recent years, the Group has partnered two important science and industry events in France:

- the *Fête de la Science*, an initiative of the French Ministry of Higher Education and Research to encourage interaction between research scientists and the general public; and
- the *Semaine de l'Industrie*, a week-long event that gives young people and career seekers insights into the world of industry and its job opportunities.

The Group also supports environmental initiatives. In 2018, more than 1,000 trees of various species were planted by some one hundred employees of the Bostik site in Tanay (Philippines) and their families.

Initiatives involving associations

The Group's values of solidarity and responsibility show through in the initiatives undertaken in partnership with non-profit associations in its host regions. Many examples around the world attest to the dedication of Group employees to helping the neediest and to being actively involved in their local communities.

The Group regularly leads or partners a broad range of community outreach initiatives in such areas as:

- jobs for people with a disability, with support for several associations that help people with a disability enter the workforce;
- health and community, with corporate and employee participation in a large number of charitable campaigns; and
- the environment, with programs to improve biodiversity (see section 4.3.3.4 of this chapter).

Lastly, in early 2018, Arkema introduced a "salary rounding" system, initially in France. The system allows employees to donate the cents from their monthly salary to a non-profit organization with Arkema donating the same amount as its employees. The non-profit organizations that benefit from this initiative are active in areas that relate to the Group's CSR policy, such as the issue of access to water. Under this initiative, close to 600 employees made donations to six associations.

Educational initiatives

Around the world, the Group gives priority attention to strengthening its ties with schools and universities.

Programs and events are regularly organized in cooperation with schools, to provide young people with information on careers in the chemicals industry and to promote the development of a scientific culture. Locally, the production facilities periodically organize tours for school groups, take part in educational initiatives, and speak at conferences at higher education venues.

In the United States, the Arkema Inc. Foundation, set up in 1996, runs a number of selfless initiatives focused on science and education at all levels. Since its creation, its yearly Science Teacher Program has reached hundreds of researchers and teachers.

In 2016, the Group began working with France's CGénial Foundation to support its programs designed to promote science and its different careers among college students in France. With the partnership, Arkema reaffirmed its commitment to attracting young people to science and developing bridges between business and academia by taking part in the Foundation's flagship programs. As a result, more than 130 teachers visited the Group's plants and research center in France in 2018.

Driven by its commitment to corporate social responsibility, Arkema created a fund for education on its 10th anniversary. The aim is to finance projects submitted by employees who volunteer on education-related initiatives. The fund is a way for the Group to support the volunteer work carried out by its employees, as well as their engagement and commitment to non-profit organizations. Since the fund's creation, 32 education-related non-profit organizations have been selected in nine countries.

Youth inclusion

The Group also offers opportunities for socially disadvantaged young people, and helps them to earn academic qualifications. To promote access to the prestigious ENSIC chemical engineering school, *Fondation de France* and the Group founded Fondation ENSIC to grant scholarships to students experiencing financial hardship. Since it opened, the foundation has provided support for around a hundred students.

In France, Arkema has been a patron of the *Théâtre des Champs-Élysées* in Paris since the 2017/2018 season and started supporting the theater's youth program during 2018. Helping to provide disadvantaged young people with greater access to music and opera is aligned with Arkema's focus on youth inclusion and with the values of solidarity and accountability championed by the Group.

Gender diversity

In keeping with its internal policy of promoting gender diversity and making all positions accessible to women, including at its plants, Arkema has signed a partnership with FIFA in relation to the Women's World Cup France 2019™. Spanning 2018 and 2019, the partnership offers an invaluable opportunity to showcase the role of women in sport and business. The aim is to illustrate that women have an important role to play in industry – including in the chemicals sector – just as they do in football, despite the fact that both are still viewed as male domains. The partnership also gives the Group an opportunity to highlight that some of its products, such as Pebax®, are used in the production of soles for soccer shoes.

Arkema also supports women's soccer in the United States by sponsoring a team of young women in New York.

Water

After supporting the Sail for Water association from 2015 to 2017, Arkema continued its efforts to promote universal access to drinking water through the distribution of filtration kits in 2018. During the year, non-profit organization No Thirst Initiative provided 300 filtration kits to villages, schools, hospitals and clinics in Nepal, thereby providing access to drinking water to more than 3,000 people in isolated areas.

Innovation

A partnership with the world of sailing enables the Group to demonstrate and explain its performance-oriented innovation approach to the general public. Arkema has been supporting the construction of highly innovative sailing boats and their race programs since 2013. Its innovative materials are used to manufacture and improve the performance of a "Multi50" trimaran and a "Mini 6.50" monohull. At the start or finish of a race, in France and the United States, the Group invites its stakeholders to tour the boats and meet the skippers. In this way, customers, partners, students from partner schools, and employees and their families have all had the opportunity to discover and discuss the direct ties between innovation and performance that exist thanks to Arkema's high performance materials.

4.5 REPORTING METHODOLOGY

4.5.1 Reporting organization

The CSR reporting organization is designed to enable the Group to manage and measure the effectiveness of its sustainable development program.

Reporting scope and period

The reporting scopes for safety, employee, environmental and social data is presented below. To optimize the organization, coordination and integration of the financial and CSR reports, these data are reported on a calendar year basis.

Reporting organization and protocol

The Group has defined directives governing the reporting of safety, environmental, employee and social data for all facilities. Data are generally reported once a year, but for certain specific issues, interim data are reported quarterly so as to identify trends and implement required corrective measures on a timely basis. The interim data are not published.

Compliance and standards

The Group publishes employee, environmental and social information in compliance with article L. 225-102-1 of the French Commercial Code, as amended most recently by French Law no. 2018-938 of 30 October 2018, and with articles R. 225-105 and R. 225-105-1 of said Code, as amended by French Decree no. 2017-1265 of 9 August 2017. Arkema also follows the recommendations of ISO 26000. In compliance with the abovementioned article L. 225-102-1, this information is reviewed by an independent third-party auditor, who issues a report attesting to the consistency and fairness of the CSR information. The report is presented in section 4.5.6 of this chapter.

The reporting process follows the Global Reporting Initiative guidelines (GRI Standards). The concordance table can be found in section 4.5.5 of this chapter.

4.5.2 Methodological note on environmental and safety indicators

4.5.2.1 ENVIRONMENTAL REPORTING TOOLS AND SCOPE

Absolute data

The Group's absolute environmental data are compiled by its Reporting of Environmental and Energy Data (REED) system, which is accessible worldwide via the web platform of a service provider.

The values of the absolute indicators, once published after review by the independent third-party auditor, are not amended in the REED system. Any subsequent retroactive modifications made due to a change in the estimation method or a correction are addressed in section 4.3.3 of this chapter.

The data are entered by the plant Health, Safety and Environment (HSE) departments and validated at two levels, geographic and corporate.

The scope of consolidation for environmental reporting covers all Group industrial sites for which operating and emissions permits were held in the name of the Group or a majority-owned subsidiary at 31 December 2018. On this basis, the scope covered 99% of the Group's industrial operations in 2018.

The scope of consolidation for energy reporting covers all of the industrial sites operated by the Group or by majority-owned subsidiaries, head offices and research and development centers, corresponding to around 91% of the total scope. It should be noted that this scope covers more specifically 98% of the industrial sites operated by the Group or by majority-owned subsidiaries.

Operations sold or discontinued in 2018 were removed from the scope of reporting for the year but remain in prior-year data.

For activities that were acquired in 2018, all operations for the year are included in the scope of reporting.

Operations that started up in 2018 reported data from their start-up date.

Intensive data (EFPIs)

To manage its environmental performance more efficiently and report consolidated data that more accurately track this performance year by year, Arkema uses a methodology that enables production facilities to report relative indicators, known as Environmental Footprint Performance Indicators (EFPIs). This method of calculating the intensity of emissions or resource consumption relative to production volumes, compared with 2012 as a baseline year, minimizes the impact of any changes in the business base and plant output, as well as any changes to the method used to estimate or calculate environmental footprint variables.

These relative environmental data are compiled by the same REED environmental reporting system, which is accessible worldwide via the web platform of a service provider.

EFPI data are entered by facility HSE departments and validated first by the factory manager then at Group level. They are subject to a large number of consistency tests.

The scope of consolidation for EFPI reporting covers Group sites for which operations (and emissions) permits were held in the name of the Group or a majority-owned subsidiary at 31 December 2018 and which are among the biggest contributors of the Group's sites. In all, these sites account for at least 80% of the Group's prior-year emissions or consumption.

Any activities sold or terminated in 2018 are not included in the scope of EFPI reporting for 2018, but are still included for previous years.

Operations started up in 2017 will be included in the EFPI reporting in 2019 compared with their 2018 performance.

Operations acquired in 2018 will be included in the 2020 scope of EFPI reporting for all of their 2020 activities, compared with their 2019 performance.

The EFPI methodology allows new reporting units to be included in prior-year performance data. Should the inclusion of a large number of new units result in a significant change to the confidence interval in the calculation of the Group's EFPIs, consideration will be given to whether an adjustment factor should be applied or whether the use of a new baseline year should be used.

4.5.2.2 SAFETY DATA REPORTING TOOLS AND SCOPE

Safety data:

- are recorded in the SafetyLog application accessible on the employee intranet;
- are entered by the reporting units and validated at corporate level; and
- cover all of the industrial sites operated by the Group or by majority-owned subsidiaries, head offices and research and development centers, corresponding to around 99% of the scope. Den Braven's sites are not included in accident safety reporting (see section 4.5.2.4 of this chapter), nor are they subject to peer observation.

4.5.2.3 CHOICE OF INDICATORS, MEASUREMENT METHODS AND USER INFORMATION

The Group has designed indicators to track the emissions and consumption levels that concern its operations, in accordance with the information required by articles R. 225-105 and R. 225-105-1 of the French Commercial Code. These indicators enable the Group to assess the impact of its policies and monitor changes over time for certain types of emissions and uses that have been identified as risks.

They were introduced at the time of the Group's creation in 2006 and have been tracked ever since, in compliance with the social and environmental reporting requirements set out in the French New Economic Regulations Act (the so-called NRE Act) of 15 May 2001.

The environmental reporting system is governed by an Environmental Reporting directive, an EFPI Reporting directive and an Energy Reporting directive issued by the Group Safety and Environment (DSEG), Sustainable Development (DDD) and Raw Materials and Energy Procurement (DAMPE) departments and accessible to all employees on the corporate intranet.

Calculation and estimation methods are subject to change, for example due to changes in national or international legislation, measures to improve consistency among regions, or problems with their application.

The directives may then be expressed in guidelines and handbooks, which are supported by training sessions in each region as required.

The safety reporting process is covered by a Monthly Safety Reporting directive issued by the Group Safety and Environment department and accessible to all employees on the intranet.

4.5.2.4 CLARIFICATIONS CONCERNING THE ENVIRONMENTAL AND SAFETY INDICATORS

The following information is provided to clarify the definition of the indicators applied by the Group.

Total acidifying substances

This indicator is calculated using sulfur oxide (SO_x), ammonia (NH_3) and nitrogen oxide (NO_x) emissions converted into tonnes of sulfur dioxide (SO_2) equivalent.

Volatile organic compounds (VOCs)

The list of products regarded as VOCs may vary from country to country, in particular between Europe and North America.

The VOC definitions used by the Group are those recommended in Europe by directive 2010/75/EU on industrial emissions, known as the Industrial Emissions Directive (IED).

Emission figures for US sites are therefore obtained by adding figures for products such as fluorinated organic compounds to national reported data.

Chemical oxygen demand (COD)

For reporting purposes, COD is measured in effluent released into the natural environment.

In cases where wastewater from a Group facility is treated in an external plant, the reported data takes into account the effectiveness of the treatment process.

In cases where a Group facility takes in COD-laden water, the reported data concerns the net COD load effectively produced in the ecosystem by the Group (outgoing less incoming).

Waste

The distinction between hazardous and non-hazardous waste may vary from one region to another. The definitions used by the Group are those of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.

By-products that are sold to third parties for reuse without processing at a Group site are not counted as waste.

Water use

All sources of water are included in the reported data, including groundwater/wells, rivers, the sea, public or private networks and drinking water, excluding rainwater collected in separate networks.

Energy use

Reported use corresponds to net energy purchases.

It does not include self-generated energy, which corresponds to the energy produced by exothermic chemical reactions and therefore does not draw down the planet's energy resources.

Sales of energy are deducted from purchases of energy. This is the case, for example, for facilities fitted with combined heat and power plants that generate steam and electricity from purchased gas (reported), then sell the electricity (deducted).

In cases where sites do not have any December data due to late reporting by energy providers, the values for the year are extrapolated from the data at end-November.

Direct greenhouse gas (GHG) emissions

For reporting purposes, direct GHG emissions correspond to those defined in the Kyoto Protocol.

Their impact is calculated in equivalent tonnes of carbon dioxide (t CO_2 eq.).

In this report, 2018 emissions have been calculated using the Global Warming Potential values published in 2007 by the Intergovernmental Panel on Climate Change (IPCC).

For relative data, EFPI calculations include fluorinated greenhouse gases that are not listed in the Kyoto Protocol but are listed in the Montreal Protocol.

Indirect greenhouse gas (GHG) emissions

For the purposes of this report, indirect Scope 2 CO_2 emissions were calculated using electricity and steam consumption and emission factors in tonnes of CO_2 equivalent per input unit (KWh tonnes of oil equivalent) reported by suppliers. Where this was not possible, they were calculated using figures provided by local authorities, such as those available in the EPA-2012 database in the United States, the 2013 Baseline Emission Factors for Regional Power Grids issued by China's National Development & Reform Council (NDRC) for China, and SEMARNAT data issued by Mexico's Federal Environmental Agency for Mexico. In the absence of specific regional values, calculations were made using national energy-mix emission factors published by the International Energy Agency in 2017.

For the purposes of this report, indirect Scope 3 CO_2 emissions were calculated using the default scenarios in the GHG Protocol guidance for the chemical sector, issued by the World Business Council for Sustainable Development (WBCSD). Indirect Scope 3 emissions relate to the Group's value chain, including both upstream and downstream emissions, and have been calculated for seven categories. A detailed explanation of the calculation methodology is available to stakeholders upon request.

- Category 1 – Purchased goods and services: emission estimates comprise figures for raw materials and packaging. For raw materials, a CO_2 equivalent emissions coefficient per tonne is applied to the purchased tonnage. For packaging, the quantities purchased in 2017 are extrapolated for 2018 on the basis of product volumes sold, and a CO_2 equivalent emissions coefficient is applied for each category of material (metal, wood, polymer, paper, etc.) and end-of-life scenario (e.g. metals recycling). The emission coefficients used are those in the EcoInvent base (version 3.4).
- Category 2 – Capital goods: emissions are estimated based on the amount of capital expenditure and by applying the default rule described in the WBCSD guide when the composition of capital goods and their emission factors are not available. Capital expenditure is therefore split between 25% concrete and 75% steel.
- Category 3 – Fossil fuels and energy in relation to Group activities: emissions are estimated applying the default methodology set out in the WBCSD guide. These emissions include (i) losses expressed in CO_2 equivalent in relation to electricity and steam transmission and distribution networks in each of the countries in which Arkema has industrial operations, (ii) upstream emissions for fossil fuel, steam and electricity consumed in each country by Arkema industrial sites, and (iii) upstream emissions for fossil fuels, steam and electricity sold by certain Arkema industrial sites. Emission coefficients for losses on the electricity and steam transmission and distribution networks in each country, and upstream of fossil fuel, steam and electricity are as given in the 2017 version of the DEFRA database [(1)].
- Category 5 – Waste generated: the emissions calculated are those related to the waste generated during the Group's operations. The WBCSD rule is applied, with emission estimates based on the Group's waste treatment breakdown and the emission factors given in the EcoInvent base (version 3.4) for incinerated, landfilled and recycled waste. Calculations are based on the actual quantities of waste from each site that is treated in the various ways. As a first step, all of the landfilled waste was considered as organic waste and therefore totally decomposed.
- Category 6 – Business travel: the emissions calculated correspond to travel by plane (the type of transportation that emits the most GHGs) by Group employees representing 90% of the global scope. Total air travel distances come from travel agency data, and emissions are calculated applying emission factors given in the 2017 version of the DEFRA database.
- Category 7 – Employee commuting: emissions were estimated using the least favorable scenario, assuming that all 20,000 employees use their own cars to get to work, traveling an average distance of 33km per day in France [(2)], 26km in the United States [(3)], and 50km in other countries. The emission factors applied correspond to the average CO_2 emissions per kilometer by vehicle type and fuel type given in DEFRA database (2017 version).
- Category 8 – Upstream leased assets: emission figures in this category are for energy consumption at leased real-estate assets (head offices, sales offices and research centers), except for those already included in Scope 2 reporting. Where site energy consumption data was not directly available, estimates were made working from the energy consumption ratio (all usages) given by ADEME [(4)] (243kWh/m^2 per year) and the rented surface in square meters. Where site surface area data was not available, calculations applied the average surface area per employee at the type of site in question, as determined by Arkema. Emissions were then calculated by applying the emission factor for the national electricity mix in the country where each site is located.
- Category 9 – Downstream transportation and distribution: the emissions were estimated using Group company logistics data, which account for 99% of consolidated shipments. The

(1) UK Department for Business, Energy and Industrial Strategy.

(2) Source: National Transportation and Travel Global Survey (2008) by the Observation and Statistics department (SOeS) of the French Ministry of Ecology, Energy, Sustainability and the Sea (MEEDDM).

(3) Bureau of Transportation Statistics.

(4) French Energy and Environment Agency.

Group defines a shipment as the transportation of products to customers, as well as any post-production logistics. Emissions are calculated by taking such logistics data as tonnes transported, number of shipments, and average kilometers for each type of transportation (road, rail, air, etc.) and applying the emission factors defined in the Guidelines for Measuring and Managing CO_2 Emissions from Freight Transport Operations published by the European Chemical Transport Association (ECTA) and the European Chemical Industry Council (CEFIC) in March 2011, based on the work of Professor Alan McKinnon of Heriot-Watt University in Edinburgh, UK. The reporting period runs from 1 October to 30 September of the following year. To broaden the reporting scope and enhance the reliability of data, the methodology applied by the Group was significantly improved in 2017, particularly in the United States. Current reporting practices are showing their limits, particularly as concerns operations outside Europe and outside Arkema Inc. These limits mainly relate to reported distances, with average distances used in the absence of actual data, and emission factors, with standard factors used in the absence of transporter data. These methodological limits mean that 2017 data are accurate to within plus or minus 10%.

- Category 12 – End-of-life treatment of products sold: the products sold by the Group have been classified into 23 different categories based on their chemical composition and, by extension, the GHG emissions that they may generate. A scenario was applied to define the end-of-life treatment method for each product category: incineration, landfilling or recycling. Emission factors were then applied in accordance with the WBCSD guide. For this estimate of Category 12 emissions, all of the Group's products were taken into account except fluorogases and Bostik products, which are still under review.

Accidents

Total recordable injury rates (TRIR) and lost-time injury rates (LTIR) are calculated for both Group and on-site subcontractor employees on the basis of US standard 29 CFR 1904.

The operations of Den Braven, acquired recently on 1 December 2016, were not included in the 2018 scope. The TRIR and LTIR data presented above do not include Group employees or subcontractor employees working on Den Braven sites for 2018.

Process safety

The safety performance of a plant's production processes is assessed by means of performance indicators that measure and analyze process safety incidents. The Group reports and classifies process safety indicators in accordance with European Chemical Industry Council (CEFIC) guidelines. Until the end of 2016, the definition used for process safety events was the one proposed by CEFIC. During 2016, the International Council of Chemical Associations (ICCA) proposed new criteria to be used globally. Like CEFIC, Arkema decided to use these new criteria to measure its process safety event rate (PSER), starting in 2017.

AIMS-audited sites

The Group tracks the increase in the percentage of facilities that have been audited in accordance with the AIMS standard. Depending on their specific features and size, some sites have had the option since 2016 of performing simplified self-assessments. This is the case for Bostik in particular.

4.5.3 Methodological note on employee, social and R&D information/indicators

4.5.3.1 SCOPE AND REPORTING TOOLS

Employee data are taken from several different reporting processes.

The employee data presented in section 4.4 of this chapter:

- are recorded in the AREA 1 application, accessible via the corporate intranet;
- are entered by the human resources managers or company Managing Directors (depending on their size);
- are validated at the Arkema, Altuglas International, Bostik, CECA, Coatex, Den Braven and MLPC group levels; and
- cover all companies in which the Group has at least a 50% interest.

The quantitative and qualitative data concerning other employee and social information:

- are recorded in the AREA 2 application, accessible via the corporate intranet;
- are entered by human resources employees of the companies or regional organizations;
- are validated by the regional Human Resources directors or subsidiary managers; and
- cover all companies of 60 or more employees in which the Group has at least a 50% interest at 30 June of the reporting year, which accounts for 92.2% of the Group's total headcount.

Any changes or corrections to prior-year data are noted in section 4.4.1 of this chapter.

4.5.3.2 CHOICE OF INDICATORS, MEASUREMENT METHODS AND USER INFORMATION

The Group has defined and tracks indicators relevant to its activities and its main risk and opportunity challenges.

The indicators relating to employee numbers and safety performance have been tracked since the Group's creation in 2006.

Additional employee information and indicators and social data have been reported since 2012 via the AREA 2 compilation system, in particular the number of training hours.

Employee data reporting is covered by different procedural documents in the form of AREA 1 and AREA 2 guidelines, which have been provided to all of the contributors and validators.

The calculation methods may have limitations and be subject to change, for example due to varying national labor legislation and practices, difficulties in reporting certain information in some regions, or the unavailability of certain data in some countries.

Food waste, food security and the responsible, equitable and sustainable production of food are not considered as risks for Arkema. As a result, this reference document does not include any information about combating food waste, ensuring food security or promoting the responsible, equitable and sustainable production of food.

4.5.3.3 DETAILS ON EMPLOYEE INFORMATION AND INDICATORS

Headcount

For the purposes of reporting, the headcount includes employees on payroll (employees present and employees whose employment contract, of any type, has been suspended) at 31 December of the reporting year.

Permanent employees are defined as employees that have signed an employment contract for an indefinite period of time. Outside France, employees hired on fixed-term contracts for periods of more than 12 months and renewed more than once are also included among permanent employees.

Employee categories

Data are presented by professional category. In France, manager status (*cadre*) is determined by the collective bargaining agreements governing the company concerned. Outside France, employees with a Hay job level of 10 or more are considered managers.

New hires

These data cover only the hiring of employees under permanent contracts, including the transformation of contracts (fixed-term into permanent contracts in France, for example).

Compensation

Collective bonus components are defined as components that vary depending on overall business criteria and the business and financial results of the employee's company. In France, these take the form of incentive and profit-sharing schemes.

Health and welfare

Health and welfare cover refers to benefits from a collective or mutual insurance plan providing cover for incapacity/disability/death risks.

Training

The data relate to training hours recorded for Group employees excluding e-learning courses.

Absenteeism

The absenteeism rate corresponds to the total number of hours of absence in the year (due to sickness, injuries, maternity leave, strikes and unpaid leave but excluding paid leave) divided by the total number of hours worked in the year.

Departures

Since 2016, departures are recorded only when the person leaves the Group, so that reported data no longer include inter-subsidiary transfers.

4.5.3.4 DETAILS ON R&D INFORMATION AND INDICATORS

Sustainable development patents

Number of original patent applications filed in the reporting year by the Group in response to sustainable development issues related to the UN Sustainable Development Goals, as described in section 4.2 of this chapter.

R&D expenditure

R&D expenditure is expressed as a percentage of consolidated revenue for the year.

Number of non-disclosure, cooperation and intellectual property agreements

The number of contracts corresponds to the non-disclosure, cooperation and intellectual property agreements signed by Arkema France during the year and recorded by the R&D department in its Athena database.

4.5.4 Indicators

		2018	2017	2016
SAFETY [1]				
Total recordable injury rate (TRIR)	per million hours worked	1.3	1.6	1.5
Lost-time injury rate (LTIR)	per million hours worked	0.8	0.6	0.9
Percentage of sites audited according to Arkema Integrated Management System (AIMS) standards	%	74	69	63
Percentage of sites practicing peer observation	%	64	59	56
Safety, environment and maintenance expenditure	€m	270	242	240
Percentage of OHSAS 18001-certified sites	%	47	46	47
Percentage of OHSAS 18001-certified sites in Europe	%	53	45	54
Percentage of OHSAS 18001-certified sites in the Americas	%	48	43	45
Percentage of OHSAS 18001-certified sites in Asia	%	58	49	34
ENVIRONMENT [1]				
Percentage of ISO 14001/RCMS-certified sites	%	54	52	52
Percentage of ISO 14001-certified sites in Europe	%	60	53	56
Percentage of RCMS-certified sites in the Americas	%	36	48	57
Percentage of ISO 14001-certified sites in Asia	%	60	54	34
AIR EMISSIONS				
Acidifying substances	t SO_2 eq.	3,040	3,380	3,570
Carbon monoxide	t	940	860	690
Volatile organic compounds (VOCs)	t	4,150	4,280	4,800
Volatile organic compound (VOCs) EFPI		0.62	0.66	0.80
Dust	t	235	230	300
EFFLUENT RELEASES				
Chemical oxygen demand (COD)	t O_2	2,170	2,440	2,600
Suspended solids	t	535	920	770
Chemical oxygen demand (COD) EFPI		0.59	0.70	0.78
WASTE				
Hazardous waste (excluding material recovery)	kt	159	155	157
• of which landfilled	kt	4	3.4	2.7
Hazardous waste recycled into materials	%	15	15	15
Hazardous waste burned as fuel	%	48	49	49
Non-hazardous waste	kt	278	242	256

		2018	2017	2016
RESOURCES				
Total water withdrawn	millions of cu.m	119	118	126
Net energy purchases	TWh	8.07	8.12	8.25
• of which in Europe	TWh	4.33	4.37	4.37
• of which in America	TWh	2.53	2.47	2.64
• of which in the Rest of the world	TWh	1.21	1.28	1.24
Energy EFPI		0.88	0.89	0.92
Net energy purchases by type				
• fuel	TWh	4.06	4.11	4.42
• electricity	TWh	2.72	2.76	2.71
• steam	TWh	1.29	1.25	1.12
Natural gas in net purchases of fuels	%	97	93	91
Low-carbon electricity in net energy purchases	%	22	18	17
Number of Arkenergy investments		50	60	51
• of which in Europe		26	41	31
• of which in the Americas		14	11	9
• of which in the Rest of the world		10	8	11
Number of ISO 50001-certified sites		30	29	22
GREENHOUSE GAS EMISSIONS				
Direct greenhouse gas emissions corresponding to the Kyoto Protocol	kt CO_2 eq.	2,720	3,000	3,110
• of which CO_2	kt CO_2 eq.	1,480	1,430	1,540
• of which HFC	kt CO_2 eq.	1,210	1,530	1,530
Direct greenhouse gas emissions corresponding to the Kyoto Protocol, by region				
• Europe	%	31	33	32
• Americas	%	55	54	56
• Rest of the world	%	14	13	12
Scope 2 indirect greenhouse gas emissions of CO_2	kt	1,155	1,080	1,080
• of which in Europe	kt	291	302	255
• of which in the Americas	kt	373	378	425
• of which in the Rest of the world	kt	491	400	400
Scope 3 indirect greenhouse gas emissions of CO_2 (to within 10%) (2)	Mt	9.56	3.56	0.26
Direct GHG emissions EFPI		0.46	0.52	0.60
ADAPTING TO THE CONSEQUENCES OF CLIMATE CHANGE				
Number of sites exposed to a severe risk of storms and/or flooding		22	22	22
Sales from products made in full or in part from renewable raw materials	%	9	9	10

		2018	2017	2016
EMPLOYMENT (1)				
HEADCOUNT				
Total headcount at 31 December		20,010	19,779	19,637
• of which permanent employees		19,301	18,701	18,607
• of which fixed-term employees		709	1,078	1,030
Managers	%	27.3	26.9	26.2
Women	%	25.3	25.0	24.6
Women in senior management and executive positions (Hay grade 15 or higher)	%	21	19	18
Non-French nationals in senior management and executive positions (Hay grade 15 or higher)	%	39	37	39
Recruitments		1,833	1,616	1,694
Women recruitments	%	28.2	28.5	24.7
New hires aged 50 and over	%	9.5	9.4	7.9
New hires aged under 30	%	37.6	38.5	42.0
Departures		1,852	1,705	2,023
• of which resignations		1,004	862	866
• of which dismissals		322	332	428
• of which following a divestment/merger		0	0	324
Part-time employees	%	3.7	3.7	3.8
TRAINING				
Number of training hours	thousands	456	484	465
Number of training hours per employee		25	25	26
Number of employees who received training, excluding e-learning		17,111	16,161	16,256
Number of employees who took an e-learning course		15,042	10,496	9,298
Number of safety training hours	thousands	193	207	181
Number of safety training hours per employee trained		14	15	14
Number of employees who received safety training (excluding e-learning)		13,588	13,556	12,862
Number of employees who took safety-related e-learning courses		8,539	6,276	4,479
Number of environment-related training hours		15,795	22,665	19,029
Number of environment-related training hours per employee trained		4	6.6	6.3
Number of employees who received environment-related training (excluding e-learning)		3,919	3,398	3,012
Percentage of apprenticeships (Arkema France)	%		3.5	3.9
Proportion of Group employees benefiting from annual performance reviews	%	99	99	99
HEALTH AND WELFARE				
Absenteeism	%	3.9	3.9	3.7
Hours off work on medical grounds as a % of hours worked	%	2.7	2.8	2.6
Employees benefiting from medical care	%	93	94	92
Employees benefiting from supplementary disability cover	%	90	90	89
Employees benefiting from supplementary life cover	%	92	93	94
Employees covered by death benefits representing at least 18 months' salary	%	82	81	74

		2018	2017	2016
COMPENSATION				
Employees benefiting from minimum compensation guarantees	%	100	99.6	99.2
Employees benefiting from collective variable compensation components	%	68	67	68
Employees benefiting from individual variable compensation components	%	35	32	31
REPRESENTATION				
Percentage of employees benefiting from personnel representation and/or trade union representation	%	90	89	90
SOCIETAL (1)				
Number of Common Ground® initiatives		1,064	1,011	866
Group industrial sites taking part in Common Ground®	%	84	78	86
European industrial sites taking part in Common Ground®	%	73	73	84
North American industrial sites taking part in Common Ground®	%	73	85	92
Asian industrial sites taking part in Common Ground®	%	69	64	93
INNOVATION (1)				
Sustainable development patents addressing SDGs		154	150	116
R&D expenditure as a percentage of consolidated revenues	%	2.7	2.8	2.9
Number of non-disclosure, cooperation and intellectual property agreements signed by Arkema France		476	415	276
PRODUCT STEWARDSHIP				
Number of substances with REACH registration		425	406	317
Number of GPS sheets voluntarily published		145	145	145

(1) Indicators are defined in detail in the methodological notes in sections 4.5.1 and 4.5.2 of this chapter.
(2) The Scope 3 categories covered by this estimate are detailed in section 4.3.3.2.3 of this chapter.

4.5.5 Index of Global Reporting Initiative (GRI) content

The in accordance option chosen for GRI standards is "Essential Criteria".

Declaration of GRI compliance

Arkema applies the reporting principles and prepared its reporting in compliance with GRI : ESSENTIAL COMPLIANCE.

GRI reporting standards are essential to obtain a good quality CSR report.

Each reporting principle includes one requirement and guidelines relative to the principle's application procedures. In order to ensure a good quality approach, in line with GRI standards expectations, Arkema ensured the implementation of the tests indicated for each principle by MATERIALITY-Reporting, GRI DATA PARTNER for France. The index of contents is presented below.

GRI Standard	Item	Description	Location in reference document
GRI 101: GENERAL PRINCIPLES - 2016			
GRI 102: GENERAL STANDARD DISCLOSURES - 2016			
ORGANIZATIONAL PROFILE			
	102-1	Name of the organization	6.1.1 - Information about the Company
	102-2	Activities, brands, products and services	1.2 - Business overview
	102-3	Location of the organization's headquarters	6.1.1 - Information about the Company
	102-4	Location of operations	6.1.2 - Subsidiaries and shareholdings of the Company
	102-5	Capital and legal form	6.1.1 - Information about the Company
	102-6	Markets served	1.2 - Business overview
	102-7	Scale of the organization	1.2 - Business overview 6.1.1 - Information about the Company
	102-8	Information on employees and other workers	4.4.1.2 - Employment/Total headcount and employees by region, gender and age
	102-9	Supply chain	1.4 - Raw materials and energy supply contracts 4.1.5 - Stakeholders and materiality analysis 4.2.1 - Management of the sustainable solutions portfolio 4.2.3 - Management of the solutions portfolio
	102-10	Significant changes to the organization and its supply chain	2.2 - Comprehensive internal control and risk management procedures
	102-11	Precautionary principle or approach	2.1.1 and 2.1.3 - Industrial safety, environmental and climate change risks
	102-12	External initiatives	4.1 - Introduction 4.4.4.5 - Membership of the Together for Sustainability (TfS) initiative
	102-13	Membership of associations	4.4.6 - Corporate citizenship and philanthropy
STRATEGY			
	102-14	Statement from senior decision-maker	Message from the Chairman and CEO in the introduction of this document INNOVATIVE - Annual and sustainable development report 2017: OPINION section
	102-15	Key impacts, risks, and opportunities	4.4.1 - Main impacts, risks and opportunities 4.1.5 - Stakeholders and materiality assessment - Materiality analysis
ETHICS AND INTEGRITY			
	102-16	Values, principles, standards and norms of behavior	4.4.2 - Compliance and ethics
GOVERNANCE			

GRI Standard	Item	Description	Location in reference document
	102-18	Governance structure	4.1.4 - Participants in the CSR process 3.2 - Composition of administrative and management bodies
APPROACH TO STAKEHOLDER ENGAGEMENT			
	102-40	List of stakeholder groups	4.1.5 - Stakeholders and materiality assessment - Open dialogue
	102-41	Collective bargaining agreements	4.4.1.4 - Consultation and dialogue
	102-42	Identification and selection of stakeholders	4.1.5 - Stakeholders and materiality assessment - Open dialogue
	102-43	Approach to stakeholder engagement	4.1.5 - Stakeholders and materiality assessment - Open dialogue
	102-44	Key topics and concerns raised	4.1.5 - Stakeholders and materiality assessment - Open dialogue
REPORTING PRACTICE			
	102-45	Entities included in the consolidated financial statements	4.5.2.1 - Environmental reporting tools and scope 4.5.2.2 - Safety reporting tools and scope 4.5.3.1 - Social, employee and R&D reporting tools and scope
	102-46	Defining report content and topic boundaries	4.1.5 - Stakeholders and materiality assessment - Materiality analysis
	102-47	List of material topics	4.1.5 - Stakeholders and materiality assessment - Materiality analysis
	102-48	Restatements of information	1.2.1.3 - Overview of the High Performance Materials division - Highlights 1.2.2.3 - Overview of the Industrial Specialties division - Highlights 1.2.3.3 - Overview of the Coating Solutions division - Highlights
	102-49	Changes in reporting	4.5 - Reporting methodology
	102-50	Reporting period	4.5.1 - Reporting organization
	102-51	Date of most recent report	Page 1 footnote
	102-52	Reporting cycle	4.5.1 - Reporting organization
	102-53	Contact point for questions regarding the report	8.2 - Person responsible for the information
	102-54	Claims of reporting in accordance with the GRI Standards	4.5.1 - Reporting organization 4.5.5 - Index of GRI content
	102-55	GRI content index	4.5.5 - Index of GRI content
	102-56	External assurance	4.5.6 - Independent third-party opinion pursuant to the provisions of article L. 225-102-1 of the French Commercial Code

GRI 200-300-400: SPECIFIC STANDARD DISCLOSURES - 2016

GRI Standard	Item	Description	Location in reference document
ECONOMIC PERFORMANCE			
GRI 103: Managerial approach - 2016	**103-1**	Explanation of the material topics and their scope	4.2.3 - Management of the solutions portfolio 4.4.6 - Corporate citizenship and philanthropy
	103-2	Description of managerial approach	4.2.3 - Management of the solutions portfolio 4.4.6 - Corporate citizenship and philanthropy
	103-3	Evaluation of the managerial approach	4.2.3 - Management of the solutions portfolio
GRI 201: Economic performance - 2016	**201-1**	Direct economic value generated and distributed	4.2.3 - Management of the solutions portfolio 4.4.6 - Corporate citizenship and philanthropy 5.3.2 - Consolidated financial statements at 31 December 2018
INDIRECT ECONOMIC IMPACTS			
GRI 103: Managerial approach - 2016	**103-1**	Explanation of the material topics and their scope	4.2.3 - Management of the solutions portfolio 4.4.6 - Corporate citizenship and philanthropy
	103-2	Description of managerial approach	4.2.3 - Management of the solutions portfolio 4.4.6 - Corporate citizenship and philanthropy
	103-3	Evaluation of the managerial approach	4.4.5 - Institutional initiatives

GRI Standard	Item	Description	Location in reference document
GRI 203: Indirect economic impacts - 2016	203-1	Infrastructure investments and philanthropy	4.2.3 - Management of the solutions portfolio 4.4.6 - Corporate citizenship and philanthropy
PROCUREMENT PRACTICES			
GRI 103: Managerial approach - 2016	103-1	Explanation of the material topics and their scope	4.4.4 - Suppliers and subcontractors
	103-2	Description of managerial approach	4.4.4 - Suppliers and subcontractors
	103-3	Evaluation of the managerial approach	4.4.4 - Suppliers and subcontractors
GRI 204: Procurement practices - 2016	204-1	Proportion of spending on local suppliers	4.4.4 - Suppliers and subcontractors
ANTI-CORRUPTION			
GRI 103: Managerial approach - 2016	103-1	Explanation of the material topics and their scope	4.4.2 - Compliance and ethics
	103-2	Description of managerial approach	4.4.2 - Compliance and ethics
	103-3	Evaluation of the managerial approach	4.4.2 - Compliance and ethics
GRI 205: Anti-corruption - 2016	205-1	Operations assessed for risks related to corruption	4.4.2 - Compliance and ethics
	205-2	Communication and training on anti-corruption policies and procedures	4.4.2 - Compliance and ethics
MATERIALS			
GRI 103: Managerial approach - 2016	103-1	Explanation of the material topics and their scope	4.3.1 - Health, safety and the environment 4.3.3.1 - Environmental management
	103-2	Description of managerial approach	4.3.1 - Health, safety and the environment 4.3.3.1 - Environmental management
	103-3	Evaluation of the managerial approach	4.3.1 - Health, safety and the environment 4.3.3.1 - Environmental management
GRI 301: Materials - 2016	301-1	Materials used by weight or volume	4.3.3.3.3 - Raw materials consumption
	301-2	Recycled materials used	4.3.3.3.4 - Circular economy
ENERGY			
GRI 103: Managerial approach - 2016	103-1	Explanation of the material topics and their scope	4.3.1 - Health, safety and the environment 4.3.3.1 - Environmental management
	103-2	Description of managerial approach	4.3.1 - Health, safety and the environment 4.3.3.1 - Environmental management
	103-3	Evaluation of the managerial approach	4.3.1 - Health, safety and the environment 4.3.3.1 - Environmental management
GRI 302: Energy - 2016	302-1	Energy consumption within the organization	4.3.3.2.2 - Energy
	302-4	Reduction of energy consumption	4.3.3.2.2 - Energy
	302-5	Reduction in energy requirements of products and services	4.3.3.2.2 - Energy
WATER			
GRI 103: Managerial approach - 2016	103-1	Explanation of the material topics and their scope	4.3.1 - Health, safety and the environment 4.3.3.1 - Environmental management
	103-2	Description of managerial approach	4.3.1 - Health, safety and the environment 4.3.3.1 - Environmental management
	103-3	Evaluation of the managerial approach	4.3.1 - Health, safety and the environment 4.3.3.1 - Environmental management
GRI 303: Water - 2016	303-1	Water withdrawal by source	4.3.3.3.2 - Water use
	303-2	Management of water discharge related impacts	4.3.3.3.2 - Water use
BIODIVERSITY			
GRI 103: Managerial approach - 2016	103-1	Explanation of the material topics and their scope	4.3.3.4 - Biodiversity
	103-2	Description of managerial approach	4.3.3.4 - Biodiversity
	103-3	Evaluation of the managerial approach	4.3.3.4 - Biodiversity

GRI Standard	Item	Description	Location in reference document
GRI 304: Biodiversity - 2016	**304-2**	Significant impacts of activities, products and services on biodiversity	4.3.3.4 - Biodiversity
EMISSIONS			
GRI 103: Managerial approach - 2016	**103-1**	Explanation of the material topics and their scope	4.3.1 - Health, safety and the environment 4.3.3.1 - Environmental management 4.3.3.2 - Climate change
	103-2	Description of managerial approach	4.3.1 - Health, safety and environment management 4.3.3.1 - Environmental management 4.3.3.2 - Climate change
	103-3	Evaluation of the managerial approach	4.3.1 - Health, safety and environment management 4.3.3.1 - Environmental management 4.3.3.2 - Climate change
GRI 305: Emissions - 2016	**305-1**	Direct GHG emissions (Scope 1)	4.3.3.2.1 - Scope 1 and 2 greenhouse gas emissions
	305-2	Indirect GHG emissions (Scope 2)	4.3.3.2.1 - Scope 1 and Scope 2 greenhouse gas emissions
	305-3	Other indirect GHG emissions (Scope 3)	4.3.3.2.3 - Scope 3 emissions inventory
	305-4	GHG emissions intensity	4.3.3.2.1 - Scope 1 and Scope 2 greenhouse gas emissions/Intensive indicator for direct greenhouse gas emissions
	305-5	Reduction of GHG emissions	4.3.1 - Health, safety and the environment 4.3.3.1 - Environmental management 4.3.3.2 - Climate change
	305-7	Emissions of nitrogen oxides (NOx), sulfur oxides (SOx) and other significant atmospheric emissions	4.3.3.4.2 - Emissions into air, water and soil/Absolute indicators for air emissions
EFFLUENTS AND WASTE			
GRI 103: Managerial approach - 2016	**103-1**	Explanation of the material topics and their scope	4.3.3.3.4 - Circular economy - Waste 4.3.3.4.2 - Emissions into air, water and soil - discharge into water 4.3.3.4.3 - Management of legacy pollution and soil protection
	103-2	Description of managerial approach	4.3.3.3.4 - Circular economy - Waste 4.3.3.4.2 - Emissions into air, water and soil - discharge into water 4.3.3.4.3 - Management of legacy pollution and soil protection
	103-3	Evaluation of the managerial approach	4.3.3.3.4 - Circular economy - Waste 4.3.3.4.2 - Emissions into air, water and soil - Discharge into water 4.3.3.4.3 - Managing legacy pollution and protecting the soil
GRI 306: Effluents and waste - 2016	**306-1**	Water discharge by quality and destination	4.3.3.4.2 - Emissions into air, water and soil - Discharge into water
	306-2	Waste by type and disposal method	4.3.3.3.4 - Circular economy - Waste
	306-3	Significant spills	4.3.3.3.4 - Circular economy - Waste
	306-4	Transportation of hazardous waste	4.3.3.3.4 - Circular economy - Waste
ENVIRONMENTAL COMPLIANCE			
GRI 103: Managerial approach - 2016	**103-1**	Explanation of the material topics and their scope	4.3.1 - Health, safety and the environment 4.3.3.1 - Environmental management
	103-2	Description of managerial approach	4.3.1 - Health, safety and the environment 4.3.3.1 - Environmental management
	103-3	Evaluation of the managerial approach	4.3.1 - Health, safety and the environment 4.3.3.1 - Environmental management

GRI Standard	Item	Description	Location in reference document
GRI 307: Non-compliance with environmental laws and regulations - 2016	307-1	Non-compliance with environmental laws and regulations	4.3.1.2 - Management systems and audits
SUPPLIER ENVIRONMENTAL ASSESSMENT			
GRI 103: Managerial approach - 2016	103-1	Explanation of the material topics and their scope	4.4.4 - Suppliers and subcontractors
	103-2	Description of managerial approach	4.4.4 - Suppliers and subcontractors
	103-3	Evaluation of the managerial approach	4.4.4 - Suppliers and subcontractors
GRI 308: Supplier environmental assessment - 2016	308-1	New suppliers that were screened using environmental criteria	4.4.4 - Suppliers and subcontractors
	308-2	Negative environmental impacts in the supply chain and actions taken	4.4.4 - Suppliers and subcontractors
EMPLOYMENT			
GRI 103: Managerial approach - 2016	103-1	Explanation of the material topics and their scope	4.4.1.1 - Social management 4.4.1.2 - Employment
	103-2	Description of managerial approach	4.4.1.1 - Social management 4.4.1.2 - Employment
	103-3	Evaluation of the managerial approach	4.4.1.1 - Social management 4.4.1.2 - Employment
GRI 401: Employment - 2016	401-1	New employee hires and employee turnover	4.4.1.2 - Employment - Total headcount and employees by region, gender and age 4.4.1.2 - Employment - Recruitments and departures
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	4.4.1.2 - Employment - Organization of working time 4.4.1.2 - Employment - Compensation and changes in compensation 4.4.1.2 - Employment - Pension, health and welfare benefits 5.3.3 - Notes to consolidated financial statements - Note 25: Employer's welfare contributions 6.2.7 Share capital increase reserved for employees
OCCUPATIONAL HEALTH AND SAFETY			
GRI 103: Managerial approach - 2016	103-1	Explanation of the material topics and their scope	4.3.1 - Health, safety and the environment 4.3.2.2 - Employee health and safety
	103-2	Description of managerial approach	4.3.1 - Health, safety and the environment 4.3.2.2 - Employee health and safety
	103-3	Evaluation of the managerial approach	4.3.1 - Health, safety and the environment 4.3.2.2 - Employee health and safety
GRI 403: Occupational health and safety - 2016	403-2	Hazard identification, risk assessment, and incident investigation	4.3.2.2 - Employee health and safety 4.4.1.2 - Employment - Absenteeism
	403-3	Workers with high incidence or high risk of diseases related to their occupation	4.3.2.2 - Employee safety and health 4.3.2.1.4 - Occupational illnesses
	403-4	Health and safety topics covered in formal agreements with trade unions	4.3.2.2.2 - Health at work
TRAINING AND EDUCATION			
GRI 103: Managerial approach - 2016	103-1	Explanation of the material topics and their scope	4.4.1.3 - Training and personal development
	103-2	Description of managerial approach	4.4.1.3 - Training and personal development
	103-3	Evaluation of the managerial approach	4.4.1.3 - Training and personal development
GRI 404: Training and education - 2016	404-1	Average hours of training per year per employee	4.4.1.3 - Training and personal development - Training policy

GRI Standard	Item	Description	Location in reference document
	404-2	Programs for upgrading employee skills and transition assistance programs	4.4.1.3 - Training and personal development - Special professional training programs for employees 4.4.1.3 - Training and personal development - Career management
	404-3	Percentage of employees receiving regular performance and career development reviews	4.4.1.3 - Training and personal development - Career management
DIVERSITY AND EQUAL OPPORTUNITIES			
GRI 103: Managerial approach - 2016	**103-1**	Explanation of the material topics and their scope	4.4.1.5 - Diversity, equal opportunity and equal treatment
	103-2	Description of managerial approach	4.4.1.5 - Diversity, equal opportunity and equal treatment
	103-3	Evaluation of the managerial approach	4.4.1.5 - Diversity, equal opportunity and equal treatment
GRI 405: Diversity and equal opportunity - 2016	**405-1**	Diversity of governance bodies and employees	4.4.1.5 - Diversity and equal opportunity, equal treatment 4.4.1.2 - Employment - Total headcount and employees by region, gender and age
	405-2	Ratio of basic salary and remuneration of women to men	4.4.1.5 - Diversity and equal opportunity, equal treatment - Measures to promote gender equality
FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING			
GRI 103: Managerial approach - 2016	**103-1**	Explanation of the material topics and their scope	4.4.1.4 - Consultation and dialogue
	103-2	Description of managerial approach	4.4.1.4 - Consultation and dialogue
	103-3	Evaluation of the managerial approach	4.4.1.4 - Consultation and dialogue
GRI 407: Freedom of association and collective bargaining - 2016	**407-1**	Operations and suppliers with the right to freedom of association	4.4.1.4 - Consultation and dialogue
CHILD LABOR			
GRI 103: Managerial approach - 2016	**103-1**	Explanation of the material topics and their scope	4.4.3 - Human rights
	103-2	Description of managerial approach	4.4.3 - Human rights
	103-3	Evaluation of the managerial approach	4.4.3 - Human rights
GRI 408: Child labor - 2016	**408-1**	Operations and suppliers at significant risk for incidents of child labor	4.4.3 - Human rights
FORCED OR COMPULSORY LABOR			
GRI 103: Managerial approach - 2016	**103-1**	Explanation of the material topic and its boundary	4.4.3 - Human rights
	103-2	The management approach and its components	4.4.3 - Human rights
	103-3	Evaluation of the managerial approach	4.4.3 - Human rights
GRI 409: Forced or compulsory labor - 2016	**409-1**	Operations and suppliers at significant risk for incidents of forced or compulsory labor	4.4.3 - Human rights
SECURITY PRACTICES			
GRI 103: Managerial approach - 2016	**103-1**	Explanation of the material topics and their scope	4.3.2.2 - Employee health and safety
	103-2	Description of managerial approach	4.3.2.2 - Employee health and safety
	103-3	Evaluation of the managerial approach	4.3.2.2 - Employee health and safety
GRI 410: Security practices - 2016	**410-1**	Security personnel trained in human rights policies or procedures	4.3.2.2 - Employee health and safety

GRI Standard	Item	Description	Location in reference document
HUMAN RIGHTS ASSESSMENT			
GRI 103: Managerial approach - 2016	103-1	Explanation of the material topics and their scope	4.4.2 - Compliance and ethics 4.4.3 - Human rights
	103-2	Description of managerial approach	4.4.2 - Compliance and ethics 4.4.3 - Human rights
	103-3	Evaluation of the managerial approach	4.4.2 - Compliance and ethics 4.4.3 - Human rights
GRI 412: Human rights assessment - 2016	412-2	Employee training on human rights policies or procedures	4.4.2 - Compliance and ethics 4.4.3 - Human rights
	412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	4.4.2 - Compliance and ethics 4.4.3 - Human rights
LOCAL COMMUNITIES			
GRI 103: Managerial approach - 2016	103-1	Explanation of the material topics and their scope	4.4.6 - Corporate citizenship and philanthropy
	103-2	Description of managerial approach	4.4.6 - Corporate citizenship and philanthropy
	103-3	Evaluation of the managerial approach	4.4.6 - Corporate citizenship and philanthropy
GRI 413: Local communities - 2016	413-1	Operations with local community engagement, impact assessments, and development program	4.4.6 - Corporate citizenship and philanthropy
SUPPLIER SOCIAL ASSESSMENT			
GRI 103: Managerial approach - 2016	103-1	Explanation of the material topics and their scope	4.4.4 - Suppliers and subcontractors
	103-2	Description of managerial approach	4.4.4 - Suppliers and subcontractors
	103-3	Evaluation of the managerial approach	4.4.4 - Suppliers and subcontractors
GRI 414: Supplier social assessment - 2016	414-1	New suppliers screened to environmental criteria	4.4.4 - Suppliers and subcontractors
	414-2	Negative social impacts in the supply chain and actions taken	4.4.4 - Suppliers and subcontractors
CUSTOMER HEALTH AND SAFETY			
GRI 103: Managerial approach - 2016	103-1	Explanation of the material topics and their scope	4.2.4 - Responsible product stewardship
	103-2	Description of managerial approach	4.2.4 - Responsible product stewardship
	103-3	Evaluation of the managerial approach	4.2.4 - Responsible product stewardship
GRI 416: Customer health and safety - 2016	416-1	Assessment of the health and safety impacts of product and service categories	4.2.4 - Responsible product stewardship
	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	4.2.4 - Responsible product stewardship
MARKETING AND LABELING			
GRI 103: Managerial approach - 2016	103-1	Explanation of the material topics and their scope	4.2.4 - Responsible product stewardship
	103-2	Description of managerial approach	4.2.4 - Responsible product stewardship
	103-3	Evaluation of the managerial approach	4.2.4 - Responsible product stewardship
GRI 417: Marketing and labeling - 2016	417-1	Requirements for product and service information and labeling	4.2.4.1 - Regulatory compliance
	417-2	Incidents of non-compliance concerning product and service information and labeling	4.2.4.1 - Regulatory compliance
	417-3	Incidents of non-compliance concerning marketing communications	4.2.4.1 - Regulatory compliance
SOCIOECONOMIC COMPLIANCE			
GRI 103: Managerial approach - 2016	103-1	Explanation of the material topics and their scope	4.4.2 - Compliance and ethics
	103-2	Description of managerial approach	4.4.2 - Compliance and ethics
	103-3	Evaluation of the managerial approach	4.4.2 - Compliance and ethics
GRI 419: Socioeconomic compliance - 2016	419-1	Non-compliance with social and economic laws and regulations	4.4.2 - Compliance and ethics

4.5.6 Independent third-party opinion pursuant to article L. 225-102-1 of the French Commercial Code

REPORT BY OF THE STATUTORY AUDITORS, APPOINTED AS AN INDEPENDENT THIRD PARTY, ON THE CONSOLIDATED NON-FINANCIAL PERFORMANCE STATEMENT IN THE MANAGEMENT REPORT

For the year ended 31 December 2018

This is a free translation into English of the statutory auditor's report issued in French and is provided solely for the convenience of English speaking readers. This report should be read in conjunction with, and construed in accordance with, French law and professional standards applicable in France.

To the Shareholders,

In our capacity as Statutory Auditor, appointed as an independent third party, of Arkema S.A., certified by the French Accreditation Committee (*Comité Français d'Accréditation* or COFRAC) under number 3-1049 [(1)], we hereby report to you on the consolidated non-financial performance statement for the year ended 31 December 2018 (hereinafter the "Statement"), included in the Group Management Report, in accordance with the legal and regulatory provisions of Articles L.225-102-1, R. 225-105 and R.225-105-1 of the French Commercial Code (*Code de commerce*).

Responsibility of the company

It is the Management Board's responsibility to prepare a Statement in accordance with legal and regulatory provisions, including a presentation of the business model, a description of the main non-financial risks, a presentation of policies applied to mitigate these risks and the outcomes of those policies, including key performance indicators.

The Statement has been prepared applying the procedures of the Company, (hereinafter the "Procedures"), the most significant aspects of which are presented in the Statement and available upon request at the company's headquarters.

Independence and quality control

Our independence is defined by the provisions of Article L.822-11-3 of the French Commercial Code (*Code de commerce*) and the French Code of Ethics (*Code de déontologie*) for statutory auditors. Moreover, we have implemented a quality control system that includes documented policies and procedures to ensure compliance with applicable ethical rules, professional standards, laws and regulations.

Statutory Auditor's responsibility

On the basis of our work, it is our responsibility to express a limited assurance opinion about whether:

- the Statement complies with the provisions of Article R. 225-105 of the French Commercial Code (*Code de Commerce*);
- the information provided (hereinafter the "Information") is fairly presented in accordance with Article R.225-105-I(3) and II of the French Commercial Code (*Code de commerce*) concerning policy outcomes, including key performance indicators and actions relating to the main risks;

However, it is not our responsibility to express an opinion on:

- the company's compliance with any other applicable legal and regulatory provisions, relating, in particular, to the duty of care requirement and the fight against corruption and tax evasion;
- the compliance of products and services with applicable regulatory provisions.

(1) Scope available at www.cofrac.fr

Nature and scope of our work

We performed our work described below in compliance with Article A.225-1 et seq. of the French Commercial Code (*Code de commerce*), defining the conditions under which the independent third party performs its engagement, and with the professional guidance issued by the French Institute of Statutory Auditors (*Compagnie nationale des commissaires aux comptes* or CNCC) relating to this engagement, and with ISAE 3000 (International standard on assurance engagements other than audits or reviews of historical financial information).

We conducted work to form an opinion on the Statement's compliance with legal and regulatory provisions and the fair presentation of the Information therein:

- We gained an understanding of the activity of all companies in the consolidation scope, of the Entity's exposure to the main social and environmental risks relating to the business activity and, if applicable, of its effects on respect for human rights and the fight against corruption and tax evasion, including any related policies and their outcomes;
- We assessed the appropriateness of the Procedures in terms of their relevance, completeness, reliability, neutrality and clarity, by taking into consideration, where relevant, the sector's best practices;
- We verified that the Statement covers every category of information required under Article L.225-102-1, Paragraph III concerning social and environmental matters as well as respect for human rights and the fight against corruption and tax evasion;
- We verified that the Statement presents the business model and the main risks relating to the activity of all companies in the consolidation scope, including – if relevant and proportionate – risks due to its business relationships, products or services, in accordance with the disclosures required under Article R. 225-105-I, and policies, due diligence procedures and outcomes, including key performance indicators;
- We verified that the Statement presents the disclosures required under article R. 225-105-II if they are relevant given the main risks or policies presented;
- We obtained an understanding of the process for identifying, prioritizing and validating the main risks;
- We enquired about the existence of internal control and risk management procedures implemented by the company;
- We verified that the Statement covers all companies in the consolidation scope in accordance with Article L. 233-16 within the limits specified in the Statement;
- We assessed the data collection process implemented by the Company to ensure the completeness and fair presentation of the policy outcomes and key performance indicators that must be mentioned in the Statement;
- For key performance indicators and the other quantitative outcomes (2) that we considered the most important, we set up:
  - analytical procedures to verify that data collected are correctly consolidated and that any changes to the data are consistent;
  - tests of details based on sampling to verify that definitions and procedures are correctly applied and to reconcile data with supporting documents. The work was carried out with a selection of entities contributing (3) to the reported data and represents between 12% and 87% of consolidated data of key performance indicators and outcomes selected for these tests;
- We referred to documentary sources and conducted interviews to corroborate the due diligence procedures that we deemed the most important (4) (organization, policies, actions, qualitative outcomes);
- We assessed the overall consistency of the Statement based on our understanding of the company.

(2) Total headcount as at 31/12 and breakdown by age, gender and geographical area; Total recruits and leavers on permanent position; Number of training hours; Number of absenteeism hours; Percentage of women in management position; Percentage of employees benefiting from personnel representation and/or trade union representation; Percentage of employees benefiting from regular medical check-ups; TRIR (Total Recordable Injury Rate); LTIR (Lost Time Injury Rate); PSER (Process Safety Event Rate); Percentage of sites implementing peer observation; Percentage of AIMS (Arkema Integrated Management System) audited sites; Net purchases of energy; Direct greenhouse gas emissions (Scope 1); Indirect greenhouse gas emissions (Scope 2); Indirect greenhouse gas emissions (Scope 3 – Category 9); HFC emissions (hydrofluorocarbons); VOC emissions (Volatile Organic Compounds); Total substances contributing to acidification; Water withdrawn; COD (Chemical Oxygen Demand); Hazardous waste; Number of first patent applications filed by the Group in response to sustainable development issues; Number of "Common Ground®" initiatives.

(3) Arkema France S.A. of which plants in Villers-Saint-Paul, Lacq and Lannemezan; Arkema Inc. of which plant in Calvert City (USA); Bostik Inc. (USA); Arkema S.r.l.: plants in Rho and Spinetta Marengo (Italy); Arkema Investment Co., Ltd., Arkema Fluorochemical Co., Ltd., Arkema Daikin Advanced Fluorochemicals Co., Ltd., Arkema Chemicals Co., Ltd., Arkema Polyimides Co., Ltd., Changshu Haike Chemical Co., Ltd.: plant in Changshu (China).

(4) Social dialogue; Occupational health and safety conditions; Policies implemented in training; Measures taken to promote equal treatment; Company organisation to take environmental issues into account; Measures to prevent, reduce or repair releases to air, water and soil seriously affecting the environment; Water consumption and water supply adapted to local constraints; Energy consumption and measures implemented to improve energy efficiency; Significant greenhouse gas emissions items generated as a result of the Group's activity, particularly by the use of goods and services they provide; Relationships with individuals or organisations affected by the group's operations; Importance of subcontracting and consideration, in the relationship with subcontractors and suppliers of their social and environmental responsibility; Consideration of social and environmental issues in the company's purchasing policy; Actions taken to prevent corruption; Actions in favor of human rights.

We believe that the sampling methods and sample sizes we have used, based on our professional judgment, are sufficient to provide a basis for our limited assurance opinion. A higher level of assurance would have required us to carry out more extensive procedures.

Due to the use of sampling techniques and other limitations inherent to information and internal control systems, the risk of not detecting a material misstatement in the Statement cannot be totally eliminated.

Means and resources

Our work drew on the skills of seven individuals. To assist us in conducting our work, we called on our firm's sustainable development and corporate social responsibility specialists. We conducted around twenty interviews with the individuals responsible for preparing the Statement.

Conclusion

Based on our work, and given the scope of our responsibilities, we have no material misstatements to report that would call into question the Statement's compliance with the applicable regulatory provisions, or the fair presentation of the information, taken as a whole, in accordance with the Procedures.

Comments

Without qualifying our opinion, in accordance with article A. 225-3 of the French Commercial Code (*Code de commerce*), we draw your attention to the following matter:

- We draw your attention to the methodological limitations noted on the indicator "Greenhouse gas emissions related to the transport and distribution of products", as mentioned in paragraph 4.5.2 of the reference document including the management report. An improvement approach is ongoing to reduce the uncertainty associated with the reporting process of this data.

Paris-La Défense, 26 February 2019

KPMG S.A.

Anne Garans
Partner
Sustainability Services

François Quédiniac
Partner

4.5.7 Contacts

See section 8.2 of this document.

FINANCIAL AND ACCOUNTING INFORMATION

5

The different parts constituting the annual financial report are identified in the table of contents by the pictogram AFR

5.1 COMMENTS AND ANALYSIS ON THE CONSOLIDATED FINANCIAL STATEMENTS

This section should be read jointly with the notes to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this chapter, and in particular with the accounting policies described in note B.

All figures contained in this section are provided on a consolidated basis and in accordance with the Group's organization into three business divisions.

5.1.1 Indicators used in management analysis

The main alternative performance indicators used by the Group are defined in note C.1 to the consolidated financial statements presented in section 5.3.3 of this chapter.

When analyzing changes in its results, particularly changes in its sales, the Group identifies the impact of the following effects (such analysis is unaudited):

- **scope effect**: the impact of changes in the Group's scope of consolidation, which arise from acquisitions and divestments of entire businesses or as a result of the first-time consolidation or deconsolidation of entities. Increases or reductions in capacity are not included in the scope effect;
- **currency effect**: the mechanical impact of consolidating accounts denominated in currencies other than the euro at different exchange rates from one period to another. The currency effect is calculated by applying the foreign exchange rates of the prior period to the figures for the period under review;
- **price effect**: the impact of changes in average selling prices is estimated by comparing the weighted average net unit selling price of a range of related products in the period under review with their weighted average net unit selling price in the prior period, multiplied, in both cases, by the volumes sold in the period under review;
- **volume effect**: the impact of changes in volumes is estimated by comparing the quantities delivered in the period under review with the quantities delivered in the prior period, multiplied, in both cases, by the weighted average net unit selling price in the prior period.

5.1.2 Impact of seasonality

Due to the standard pattern of its business, the Group is exposed to seasonal effects. For example:

- demand for products manufactured by the Group is generally weaker in the summer months (July-August) and in December, notably as a result of the slowdown in industrial activity during these months, particularly in France and Europe;
- in some of the Group's businesses, particularly those serving the paint and coatings as well as the refrigeration and air-conditioning markets, sales are generally higher in the first half of the year than in the second half. By contrast, in adhesives, both halves of the year are more balanced; and
- major multi-annual maintenance turnarounds at the Group's production plants, which are generally carried out in the second half of the year, also have an impact on seasonality.

These seasonal effects observed in the past are not necessarily representative of future trends, but can have a material effect on changes in results and working capital from one quarter of the year to the next.

5.1.3 Impact of changes to accounting standards

Changes to accounting standards and any related impacts are disclosed in note B "Accounting policies" to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this chapter.

IFRS 16, "Leases" came into effect on 1 January 2019. Consequently, based on an analysis of the Group's current leases and as estimates currently stand, the application of IFRS 16 should lead, on the balance sheet, to an increase in the amount of assets and financial liabilities of less than 2% of total assets. In the income statement, EBITDA should increase by approximately 3%, while the impact on operating income and net income should be negligible. In the cash flow statement, cash flow from operating activities should increase by an amount similar to the expected EBITDA impact with an equivalent decrease in cash flow from financing activities. Further details are provided in note C.29.1.2 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this chapter. The Group estimates that the application of IFRS 16 does not have a material impact on its mid- and long-term objectives.

5.1.4 Description of the main factors which affected sales and results in the period

Following on from three years of strong growth, Arkema achieved another excellent set of results in 2018, ahead of the record level achieved for 2017. These results demonstrate the quality of the Group's management and business portfolio as well as its resilience in a more volatile and mixed macro-economic environment over the second half of the year.

A number of factors contributed to the Group's performance to varying degrees, notably:

- the resilience of specialty businesses (which made up 70% of the Group's total sales in 2018), where EBITDA was slightly up year on year despite a more unfavorable environment for raw materials and currencies. Higher earnings were driven by:
  - the excellent performance of advanced materials thanks to a strong innovation drive in the rapidly-growing areas of lightweight materials, batteries, 3D printing and consumer goods (sports, electronics) and higher demand for bio-sourced products that benefited specialty polyamides 11 and 10. Earnings were also supported by the ramp-up of the new Kynar® PVDF manufacturing facilities in China and the United States and molecular sieve production in France. These developments have largely contribued to growth in volumes above 5% and to the steady EBITDA growth over the past four years; and
  - the contribution of the bolt-on acquisitions in adhesives, including the integration of XL Brands in early 2018 and the ongoing implementation of synergies, particularly with Den Braven. During the year, Bostik also continued its drive to optimize its processes and step up its operational excellence program. Nevertheless, given its downstream positioning, Bostik's performance was temporarily impacted by the strong increase in the cost of raw materials;
- very good results achieved by the intermediate chemicals businesses, resulting notably from:
  - the excellent results achieved by the Fluorogases business in 2018, surpassing the high levels of profitability achieved in 2017. This mainly reflected the benefits of F-Gas regulation in Europe where lower sales quotas resulted in tight prices of certain products in the region. Over the next few years, the Group reiterates its objective to maintain high levels of performance in this business, at least comparable with the 2017 reference year; and
  - continuing favorable market conditions in the MMA/PMMA chain. Over the last few months of the year, these conditions normalized somewhat as competitors started up two new units in Saudi Arabia;
- a more unfavorable and mixed macro-economic environment than in 2017 with:
  - continued increases – in some cases significant increases – in the price of energy and of certain raw materials which, despite the Group's proactive efforts to raise its selling prices, had a negative impact on unit margins of the most downstream businesses with a dilutive impact on their EBITDA margins;
  - the rise of the euro in the first half of the year against the US dollar resulting in an average rate of 1.18 in 2018 (versus 1.13 for 2017). The currency effect was amplified by the strengthening of the euro against the currencies of several emerging markets. The overall currency effect (translation only) reduced sales by 2.8% for the year; and

- increasing uncertainty towards the end of the year linked notably to geopolitical tensions and volatile crude oil prices;

- excellent cash generation. Free cash flow remained high at €499 million in spite of an acceleration in major growth investments, reflecting the Group's tight working capital management;
- a very solid balance sheet with net debt held at approximately €1 billion, *i.e.* 0.7 times EBITDA for the year and a gearing of 20%.

5.1.5 Group income statement analysis

(In millions of euros)	2018	2017	Year-on-year change
Sales	**8,816**	**8,326**	**+5.9%**
Operating expenses	(6,841)	(6,467)	+5.8%
Research and development expenses	(237)	(235)	+0.9%
Selling and administrative expenses	(747)	(727)	+2.8%
Other income and expenses	(63)	(52)	+21.2%
Operating income	**928**	**845**	**+9.8%**
Equity in income of affiliates	2	1	
Financial result	(101)	(103)	-1.9%
Income taxes	(114)	(162)	-29.6%
Net income	**715**	**581**	**+23.1%**
Of which: non-controlling interests	8	5	-
Net income – Group share	**707**	**576**	**+22.7%**
EBITDA	**1,474**	**1,391**	**+6.0%**
Recurring operating income (REBIT)	**1,026**	**942**	**+8.9%**
Adjusted net income	**725**	**592**	**+22.5%**

SALES

Sales rose 5.9% year on year to €8,816 million in 2018. At constant exchange rates and business scope, growth was 7.9%, led by a 6.3% increase in prices. The price effect was positive in all three of Arkema's divisions, reflecting the Group's policy of raising its selling prices in a context of significant increases in raw material costs, as well as a favorable pricing environment for the MMA/PMMA chain and Fluorogases. Volumes were up 1.6% during the year. Higher volumes in High Performance Materials, driven by innovation, and in Coating Solutions more than offset lower volumes in Industrial Specialties, which mainly stemmed from lower sales quotas for Fluorogases. Excluding Fluorogases, volumes were up 2.7%. The bolt-on acquisitions carried out in adhesives, including that of XL Brands completed in early 2018, contributed 0.8% to overall sales growth. The negative 2.8% currency effect mainly resulted from the sharp rise in the euro against the US dollar in the first half of 2018.

The share of High Performance Materials represented 45% of Group sales excluding corporate [(1)] sales (46% in 2017). Industrial Specialties were stable at 31%, and Coating Solutions represented 24% (23% in 2017).

The geographic breakdown of the Group's sales was similar to 2017. Sales in Europe remained stable at 38% of Group sales, North America contributed 31% (32% in 2017) while Asia and the rest of the world contributed 31% (30% in 2017).

(1) As defined in note C.2 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this chapter.

EBITDA, RECURRING OPERATING INCOME AND OPERATING INCOME

At €1,474 million, EBITDA reached an all-time high. EBITDA was 6% up on the excellent 2017 performance despite an unfavorable raw materials and currency environment. This performance reflects a slight growth of specialty businesses (which made up 70% of the Group's total sales in 2018), notably High Performance Materials, and the very good results achieved by the intermediate chemicals businesses [1].

EBITDA margin came in at 16.7%, stable versus 2017 despite the dilutive impact of the price increases implemented by the Group on this ratio. The margin is in line with the Group's mid-term objectives.

Recurring operating income advanced to €1,026 million (from €942 million in 2017) in line with higher EBITDA. The 2018 figure includes €448 million in recurring depreciation and amortization, stable compared to 2017. The REBIT margin rose to 11.6% from 11.3% in 2017.

Operating income increased to €928 million, up from €845 million in 2017. The 2018 figure includes:

- operating expenses of €6,841 million against €6,467 million in 2017. This increase was mainly attributable to higher raw material prices which more than offset the favorable currency effect. Operating expenses include €35 million in depreciation and amortization resulting from the revaluation of tangible and intangible assets as part of Bostik, Den Braven and XL Brands purchase price allocations (€45 million in 2017).
- research and development (R&D) expenses, which were stable overall year on year at €237 million, *i.e.*, 2.7% of sales (€235 million and 2.8% of sales in 2017). The favorable currency effect roughly offset the impact of inflation on fixed costs; and
- selling and administrative expenses which stood at €747 million against €727 million in 2017. The higher figure reflected notably wage inflation and additions to the development teams in advanced materials and adhesives.

Operating income included a negative €63 million in other income and expenses, primarily corresponding to (i) €23 million in net restructuring charges, (ii) €23 million in asset impairments, and (iii) charges related to the termination of a supply agreement. In 2017, the negative €52 million in other income and expenses chiefly corresponded to (i) the consequences of hurricane Harvey in the United States for an amount of €24 million, (ii) €10 million in net restructuring charges, and (iii) the net impact of divestment and acquisition operations amounting to a negative €9 million.

FINANCIAL RESULT

The financial result represented a net expense of €101 million, stable overall relative to 2017 (net expense of €103 million).

In the second quarter of 2017, the Group issued a €900 million bond with a yearly 1.5% coupon and repaid a €500 million bond with a yearly 4% coupon in the fourth quarter 2017, leading to a temporary increase in its cost of debt. In 2018, this refinancing under more favorable market conditions reduced the Group's cost of debt by approximately €13 million. However, this reduction was offset by the unfavorable interest rate effect on the portion of the Group's debt converted through swaps into US dollars in an amount of around €700 million.

INCOME TAXES

The Group had a net income tax expense of €114 million in 2018, including notably a €59 million one-off tax profit with no cash impact arising from the recognition of deferred tax assets in France. Excluding exceptional items, the tax rate corresponded to 19% of recurring operating income, down significantly on the 26% rate for 2017. The year-on-year decrease resulted from the expected positive impact of the US tax reform and the geographic mix of the Group's earnings. In 2019, based on the earnings outlook, particularly in France and the United States, the Group's tax rate should represent around 21% of recurring operating income.

At end-2018, unrecognized deferred tax assets amounted to €448 million.

In 2017, income tax expense amounted to €162 million and included a number of exceptional items, including a gain of €41 million with no cash impact arising from the adjustment of deferred taxes following the decrease in corporate tax rates in the United States (€36 million) and in France, and a €14 million tax gain recorded following cancellation of the 3% contribution due on cash dividends paid in France between 2013 and 2016.

NET INCOME GROUP SHARE AND ADJUSTED NET INCOME

As a result, net income – Group share increased significantly to €707 million from €576 million in 2017.

Excluding the post-tax impact of non-recurring items, adjusted net income amounted to €725 million (versus €592 million in 2017), *i.e.* €9.51 per share (€7.82 per share in 2017).

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(1) The intermediate chemicals businesses comprise the Acrylics, PMMA and Fluorogases Business Lines.

5.1.6 Analysis of results by division

5.1.6.1 HIGH PERFORMANCE MATERIALS

(In millions of euros)	2018	2017	Year-on-year change
Sales	**3,970**	**3,830**	**+3.7%**
EBITDA	**640**	**632**	**+1.3%**
EBITDA margin	***16.1%***	***16.5%***	
Recurring operating income (REBIT)	**481**	**474**	**+1.5%**
REBIT margin	*12.1%*	*12.4%*	
Other income and expenses	(41)	(19)	
Depreciation and amortization related to the revaluation of tangible and intangible assets as part of the allocation of the purchase price of businesses	(35)	(45)	
Operating income	**405**	**410**	**-1.2%**

Sales generated by the High Performance Materials division totalled €3,970 million, up 3.7% on 2017. At constant exchange rates and business scope, sales grew by 4.7% with volumes up 2.7%, led by sustained demand for advanced materials in the areas of lightweight materials, batteries, 3D printing and consumer goods (sports, electronics) and the ramp-up of new manufacturing facilities. Selling prices increased 2.0%, thanks to the pricing actions taken by the Group throughout the course of the year. The increase was even greater in adhesives where the Group implemented significant price increases given the particularly sharp rise of certain raw materials. The integration in the adhesives business of XL Brands and of Nitta Gelatin's industrial adhesives in Japan contributed around 1.8% to the division's sales growth. The currency effect was a negative 2.9% and stemmed from the sharp rise of the euro in the first half of the year against the US dollar and the currencies of certain emerging markets.

With EBITDA up 1.3% year on year to €640 million and an EBITDA margin close to last year at 16.1%, the High Performance Materials division continued to hold firm despite a more unfavorable environment for raw materials and currencies.

This performance was achieved thanks to the robust growth of advanced materials, led by sustainable development innovations and an excellent contribution from the specialty molecular sieves business, especially in the first quarter of the year, given the particularly high density of projects finalized in 2018. In adhesives, the strong increase of raw material costs temporarily weighed on this business's performance given its downstream positioning.

In line with the increase in EBITDA, recurring operating income rose to €481 million from €474 million in 2017, and included €159 million in depreciation and amortization expense, similar to the prior-year period (€158 million).

Operating income came in at €405 million and included €41 million in net other expenses, mainly corresponding to asset impairment expense and net restructuring costs incurred in the course of Bostik's operational excellence program. It also included €35 million in depreciation and amortization, mainly further to the revaluation of tangible and intangible assets carried out as part of the Bostik, Den Braven and XL Brands purchase price allocation processes. It is virtually unchanged year on year.

5.1.6.2 INDUSTRIAL SPECIALTIES

(In millions of euros)	2018	2017	Year-on-year change
Sales	**2,699**	**2,545**	**+6.1%**
EBITDA	**675**	**585**	**+15.4%**
EBITDA margin	***25.0%***	***23.0%***	
Recurring operating income (REBIT)	**497**	**411**	**+20.9%**
REBIT margin	*18.4%*	*16.1%*	
Other income and expenses	(24)	(9)	
Depreciation and amortization related to the revaluation of tangible and intangible assets as part of the allocation of the purchase price of businesses	-	-	
Operating income	**473**	**402**	**+17.7%**

Industrial Specialties sales totalled €2,699 million, up 6.1% year on year. At constant exchange rates and business scope, sales increased 8.6%, driven by a 12.0% price effect, positive in all four of the division's product lines. Volumes were down 3.4%, mainly due to lower sales quotas for Fluorogases in Europe and the United States. The currency effect was a negative 2.5%, primarily attributable to the stronger euro against the US dollar.

EBITDA amounted to €675 million, up 15.4% year on year, and the EBITDA margin stood at 25%, with all four of the division's product lines contributing to this excellent result. The division's results reflect the overall tight market conditions in the MMA/PMMA chain despite the normalization seen in the last few months of the year and the good performance of Thiochemicals and Hydrogen Peroxide, particularly in Asia. They also reflect the benefits from Europe's F-Gas regulation in the Fluorogases business, which achieved excellent results in 2018, above our expectations and surpassing the high levels it achieved in the 2017 reference year.

Recurring operating income jumped 20.9% to €497 million and included €178 million in depreciation and amortization expense, a slight increase on last year (€174 million).

Operating income amounted to €473 million and included €24 million in net other expenses, corresponding mainly to charges related to the termination of a supply agreement. It was almost 18% higher than last year.

5.1.6.3 COATING SOLUTIONS

(In millions of euros)	2018	2017	Year-on-year change
Sales	**2,120**	**1,924**	**+10.2%**
EBITDA	**243**	**244**	**-0.4%**
EBITDA margin	***11.5%***	***12.7%***	
Recurring operating income (REBIT)	**140**	**135**	**+3.7%**
REBIT margin	*6.6%*	*7.0%*	
Other income and expenses	(4)	(8)	
Depreciation and amortization related to the revaluation of tangible and intangible assets as part of the allocation of the purchase price of businesses	-	-	
Operating income	**136**	**127**	**+7.1%**

At €2,120 million, sales for the Coating Solutions division rose 10.2% year on year. At constant exchange rates and business scope, sales were up 13.4% on 2017, fueled by a 7.4% positive price effect which reflects higher selling prices across the entire acrylics chain and by a good volume momentum mainly in Asia and the United States with a 6.0% positive effect. The divestment of the oxo-alcohol business in March 2017 resulted in a 0.4% negative scope effect, and the currency effect, which primarily stemmed from the stronger euro against the US dollar, was a negative 2.9%.

The division's EBITDA is stable at €243 million. The gradual improvement in market conditions for acrylic monomers offset the impact that higher raw materials costs (especially acrylic acid and MMA) had on the performance of downstream businesses. EBITDA margin was 11.5%, notably reflecting the particularly dilutive impact of the Group's higher selling prices on this ratio.

Recurring operating income grew 3.7% to €140 million and included €103 million in depreciation and amortization expense, down on 2017 (€109 million) due to a positive currency impact and the end of the depreciation period for certain assets.

Operating income amounted to €136 million and included €4 million in net other expenses. It was approximately 7% higher than last year.

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5.1.7 Group cash flow analysis

(In millions of euros)	2018	2017
Cash flow from operating activities	1,029	1,008
Cash flow from investing activities	(743)	(448)
Net cash flow	**286**	**560**
Of which net cash flow from portfolio management operations	(213)	(5)
Free cash flow	**499**	**565**
Cash flow from financing activities	**(268)**	**192**

CASH FLOW FROM OPERATING ACTIVITIES

(In millions of euros)	2018	2017
Cash flow from operating activities	**1,029**	**1,008**
Of which:		
Taxes	*(180)*	*(208)*
Cash items included in the financial result	*(90)*	*(92)*
Change in working capital (1)	*(121)*	*(48)*
Non-recurring items	*(38)*	*(46)*
Cash flow from portfolio management operations	*(15)*	*(6)*

(1) Excluding flows related to non-recurring items and portfolio management operations totaling a net negative €9 million in 2018.

In 2018, cash flow from operating activities was €21 million up on 2017. The €83 million increase in EBITDA, lower taxes and the actions taken to optimize inventory levels in the fourth quarter more than offset the mechanical impact on working capital of the sharp rise in selling prices and raw material costs.

In 2018, non-recurring items primarily related to restructuring costs. Net cash outflow from portfolio management operations was €15 million and mainly corresponded to acquisition-related costs.

CASH FLOW FROM INVESTING ACTIVITIES

(In millions of euros)	2018	2017
Cash flow from investing activities	**(743)**	**(448)**
Of which:		
Recurring capital expenditure	*(500)*	*(420)**
Exceptional capital expenditure	*(61)*	*(10)*
Non-recurring items	*(4)*	*(8)*
Cash flow from portfolio management operations	*(198)*	*1*

* *Restated figures (see note C.1 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this chapter).*

In 2018, the €295 million variation in cash flow from investing activities was mainly driven by an acceleration of major organic growth investments and the continued bolt-on acquisitions policy deployed by the Group, notably in adhesives.

Portfolio management operations represented a net cash outflow of €198 million, mainly stemming from the acquisition of XL Brands in the adhesives business in early January 2018. In 2017, the net cash flow from portfolio management operations was very limited as the impact from acquiring the assets of CMP Specialty Products in adhesives was almost totally offset by the divestment of the oxo-alcohol business.

INVESTMENTS OVER THE PAST THREE YEARS

(In millions of euros)	2018	2017	2016
Total intangible assets and property, plant and equipment additions	**591**	**459**	**445**
Of which recurring capital expenditure	*500*	*420**	*423*
Recurring capital expenditure as a % of Group sales	*5.7%*	*5.0%*	*5.6%*
Of which exceptional capital expenditure	*61*	*10*	*-*

* *Restated figures (see note C.1 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this chapter).*

Capital expenditure in 2018

Recurring and exceptional capital expenditure amounted to €561 million in 2018 and mainly corresponded to:

- growth projects in advanced materials, such as construction of the PEKK unit in the United States, a 30% increase in photocure resins capacity in China, and a 50% increase in global specialty polyamide powders production capacity in France;
- projects to reinforce production unit competitiveness, such as the project to replace two old acrylic-acid reactors with annual capacities of 45,000 tonnes each at the Clear Lake site in the United States with a single new reactor with an annual capacity of 90,000 tonnes;
- exceptional expenditure of €61 million, mainly attributable to the project to double thiochemicals production capacity at Kerteh, Malaysia, and investments relating to specialty polyamides in Asia; and
- investments in plant maintenance, security and the environment totaling €270 million and representing 54% of recurring capital expenditure.

For the year as a whole, recurring capital expenditure represented 5.7% of Group sales, in line with Arkema's target of maintaining its capital intensity at 5.5% of sales.

Capital expenditure over the period from 2016 to 2018

Over the past three years, Arkema has spent an average of €448 million per year on recurring capital expenditure. This investment has focused on (i) facility maintenance, safety, environmental protection and information technology, accounting for approximately 64% of the total, and (ii) development projects, including investments to improve productivity of existing facilities, accounting for approximately 36%.

Over the period, 37% of total capital expenditure in property, plant and equipment and intangible assets was made in the High Performance Materials division, 39% in the Industrial Specialties division, 19% in the Coating Solutions division, and 5% on corporate projects. The breakdown of capital expenditure by region was 46% in Europe, 34% in North America, 19% in Asia and 1% in the rest of the world.

Arkema's main development capital expenditure projects started over the past three years were:

2016-2017	Performance Additives	Two-fold increase in specialty molecular sieve production capacity at the Honfleur site in France.
2017	Bostik	New hot melt pressure sensitive adhesives (HMPSA) unit in Gujarat, India.
	Technical Polymers	25% increase in PVDF fluoropolymer production capacity at the Changshu site in China started in the first half.
2018	Technical Polymers	20% increase in PVDF fluoropolymer production capacity at the Calvert City site in the United States started in the second quarter.

In early 2019, Arkema started a world-scale PEKK plant at its Mobile site (United States) and a new polyester powder resin unit at Navi Mumbai (India).

Capital expenditure financing

The Group's capital expenditure is primarily funded by the cash resources that Arkema generates during the year. The Group may also use the credit resources detailed in notes C.17.2 and C.21 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this chapter.

FREE CASH FLOW AND NET CASH FLOW

Excluding net outflows of €213 million from portfolio management operations, free cash flow totalled €499 million (versus €565 million in 2017).

EBITDA can be reconciled to free cash flow as follows:

(In millions of euros)	2018	2017
EBITDA	**1,474**	**1,391**
Taxes	(180)	(208)
Cash items included in the financial result	(90)	(92)
Change in working capital (1)	(121)	(48)
Change in fixed asset payables (1)	46	2
Recurring capital expenditure	(500)	(420)*
Exceptional capital expenditure	(61)	(10)
Non-recurring items	(42)	(54)
Other	(27)	4*
Free cash flow	**499**	**565**

* *Restated in order to present investments with no impact on net debt separately (see note C.1 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this chapter).*

(1) Excluding flows related to non-recurring items and portfolio management operations.

Excluding exceptional capital expenditure, the EBITDA to cash conversion rate was 38% in 2018 (41% in 2017), thus exceeding the Group's target of 35%. This high level of performance reflects the Group's strict discipline in maximizing cash flow generation and managing tightly its working capital in very volatile raw materials price environment in which Arkema operated in the past two years.

After taking into account the impact of portfolio management, the Group generated net cash flow of €286 million in 2018 against €560 million in 2017.

CASH FLOW FROM FINANCING ACTIVITIES

Cash flow from financing activities represented a net outflow of €268 million for 2018 and mainly included (i) the impact of a €2.30 per-share dividend payment for 2017, representing an aggregate payout of €176 million, (ii) €50 million in proceeds from a share capital increase reserved for employees carried out in April 2018, (iii) €53 million in costs for share buybacks, and (iv) €33 million coupon paid on the Group's hybrid bond.

In 2017, cash flow from financing activities totalled €192 million and included (i) a bond issue for a total net amount of €891 million, (ii) repayment of a bond for a net amount of €494 million, (iii) payment of a dividend, and (iv) the coupon paid on the Group's hybrid bond.

5.1.8 Financing sources

5.1.8.1 BORROWING TERMS AND CONDITIONS AND THE GROUP'S FINANCING STRUCTURE

The Group has diversified financing resources including bond issues, multi-currency credit facilities and a negotiable commercial paper program, as detailed below. At the date of this document and without taking into account the issue of perpetual hybrid bonds completed on 29 October 2014 and classified as equity, these resources amounted to some €3,100 million.

Bond issues

As part of the Group's long-term financing policy aimed at diversifying its financing resources as well as extending the maturity of its debt, the Company regularly carries out bond issues, four of which are outstanding at the date of this document:

- on 26 April 2012, a bond issue for €230 million over eight years with a 3.85% interest rate and on 5 October 2012, the issue of an additional €250 million tranche, bringing the total of the bond issue to €480 million. The prospectus for this bond issue was filed with the French financial markets authority (*Autorité des marchés financiers* – AMF) under no. 12-478 and includes an interest rate adjustment clause in the event of a downgrading of the Group's credit rating to non-investment grade;
- on 6 December 2013, a bond issue for €150 million over ten years with a 3.125% interest rate;
- on 20 January 2015, a bond issue for €700 million over ten years with a 1.5% interest rate; and
- on 11 April 2017, a bond issue for €700 million over ten years with a 1.5% interest rate and on 23 June 2017, the issue of an additional €200 million tranche, bringing the total of the bond issue to €900 million.

Since 2013, bond issues have been part of the Euro Medium Term Notes ("EMTN") program put in place by the Group in 2013 in order to gain easier access to the bond markets and renewed each year since, most recently in December 2018. The prospectus for this program and for its renewal was filed with the AMF under no. 13-535 on 9 October 2013, and under no. 18-561 on 12 December 2018, respectively. The prospectus includes the usual bond default cases, in particular non-payment, early repayment subsequent to non-payment, insolvency proceedings, or cessation of activity of the issuer or a major subsidiary. These default cases may be conditional upon thresholds being exceeded or grace periods expiring.

Furthermore, all four bond issues are accompanied by an early repayment option at the bondholders' request in the event of a change of control of Arkema also involving a downgrading of its credit rating to non-investment grade, or a simple downgrading thereof if it was non-investment grade prior to the change of control.

For the purpose of financing the acquisition of Bostik, on 29 October 2014 the Company issued perpetual hybrid bonds in a total amount of €700 million. These bonds contain an initial early repayment option exercisable on 29 October 2020 and carry an annual coupon of 4.75% until that date. The coupon will then be reset every five years. These bonds are subordinated to any senior debt and are accounted for as equity in accordance with IFRS rules. They are treated as equity for 50% of their amount by rating agencies Standard and Poor's and Moody's. At the date of this document, they are rated BBB - and Ba1 respectively by said agencies. The prospectus for this issue was filed with the AMF on 27 October 2014 under no. 14-574.

Further details may be found in the EMTN program base prospectus and in the above-mentioned prospectuses, all of which are available on the Company's website (www.finance.arkema.com) in the "Financials/Debt" section.

Revolving multi-currency credit facility for €900 million

On 29 October 2014, the Company and Arkema France (the "Borrowers") and a syndicate of banks signed a revolving multi-currency credit facility in the maximum amount of €900 million which can be used in renewable drawings. This credit facility (the "Facility") was signed for an initial period of five years but has since been extended to seven years following the exercise by the banks of their option to extend it for one additional year in 2015 and then once again in 2016. The purpose of the Facility is to finance, in the form of drawings and bank guarantees, the Group's general corporate purposes, and serves as a back-up facility for the commercial paper program. The Facility had not been drawn down at 31 December 2018.

Other Group companies have the possibility to become borrowers under the Facility, in the same capacity as the Company and Arkema France.

The Facility provides for early repayment in certain cases, including a change of control over the Company (defined as any person, acting alone or in concert, holding, directly or indirectly, more than one-third of the voting rights of the Company). Should this clause be triggered by a lender, it could lead to early repayment and the cancellation of the commitments to such lender.

The Facility contains representations to be made by each Borrower relating, among other things, to its financial statements, legal proceedings, or the absence of default events. Some of these representations have to be reiterated at the time of each utilization request.

The Facility also contains the standard undertakings for this type of agreement, including:

- information undertakings (notably accounting and financial information);

- undertakings relating, among other things, to certain restrictions in connection with (but not limited to) the granting of securities, the completion of merger or restructuring transactions, the sale of assets, and the Group's debt. Depending on the case, such restrictions will not apply to ordinary operations or to transactions involving amounts below certain thresholds; and
- a financial undertaking: the Company undertakes to maintain a ratio of consolidated net debt to consolidated EBITDA (tested twice a year) equal to or less than 3.5.

The Facility also provides for default cases similar to those described in the prospectus of the above-mentioned bond issues.

Lastly, Arkema guarantees on a joint and several basis to the banks the obligations of Arkema France under the terms of the Facility, as well as those of the other borrowers, where applicable. The Facility is not subject to any other personal guarantee or security.

Negotiable commercial paper program

In April 2013, the Group put in place a negotiable commercial paper program with a ceiling of €1 billion. This program was unused at 31 December 2018.

5.1.8.2 INFORMATION ON RESTRICTIONS ON THE USE OF CAPITAL THAT HAVE SIGNIFICANTLY INFLUENCED OR MAY SIGNIFICANTLY INFLUENCE, DIRECTLY OR INDIRECTLY, THE GROUP'S BUSINESS

Subject to the stipulations of the syndicated facility described above, the Group is not subject to any restrictions on the use of capital that may significantly influence, either directly or indirectly, its business.

5.1.9 Balance sheet analysis

(In millions of euros)	31 December 2018	31 December 2017	Year-on-year change
Non-current assets*	5,818	5,460	+6.6%
Working capital	1,178	1,094	+7.7%
Capital employed	**6,996**	**6,554**	**+6.7%**
Deferred tax assets	209	150	+39.3%
Provisions for pensions and employee benefits	470	460	+2.2%
Other provisions	409	409	-
Total provisions	**879**	**869**	**+1.2%**
Long-term assets covering some provisions	79	72	+9.7%
Total provisions net of non-current assets	**800**	**797**	**+0.4%**
Deferred tax liabilities	268	271	-1.1%
Net debt	**1,006**	**1,056**	**-4.7%**
Shareholders' equity	**5,028**	**4,474**	**+12.4%**

* *Excluding deferred tax and including pension assets.*

Between 31 December 2017 and 31 December 2018, non-current assets increased by €358 million, primarily due to:

- recurring capital expenditure of €500 million and exceptional capital expenditure of €61 million [(1)]. These investments are detailed in section 5.1.7 of this chapter. During the year, the Group also made €26 million investments with no impact on net debt, which were financed by third parties;
- net depreciation, amortization and impairment expense totaling €508 million including (i) €35 million in depreciation and amortization related to the revaluation of tangible and intangible assets carried out as part of the Bostik, Den Braven and XL Brands purchase price allocation processes: and (ii) €25 million in impairment of industrial assets;

(1) See note C.1 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this chapter.

- the impact of acquisitions amounting to €197 million, mainly attributable to the integration of the assets of XL Brands and other bolt-on acquisitions carried out in adhesives which generated final goodwill of €75 million (for further details, see note C.7 "Business combinations" of the notes to the consolidated financial statements at 31 December 2018);
- a positive translation effect of €65 million, primarily due to the appreciation of the US dollar against the euro at the year-end; and
- €13 million in loans granted to employees in connection with the capital increase reserved for employees carried out in April 2018.

The net book value of the Group's property, plant and equipment was 2,627 million euros at 31 December 2018 (see note C.10 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this chapter). Arkema has a policy of owning its industrial facilities. By way of exception, Arkema sometimes leases offices and warehouses from third-party lessors. Lease commitments are included in the off-balance sheet commitments described in note C.29 to the consolidated financial statements at 31 December 2018. Beginning from 1 January 2019, the Group's lease commitments will be recognized in accordance with IFRS 16 (for further details, see note C.29.1.2 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this chapter).

At 31 December 2018, working capital rose by €84 million compared to 31 December 2017 with very limited translation and scope effects. This increase essentially reflects the mechanical impact of higher selling prices and raw materials costs. In this context, and despite the unfavorable currency effect, the net book value of inventories declined year on year, reflecting the Group's tight inventory management and the actions taken at year-end to optimize inventory levels at 31 December. Consequently, at 31 December 2018, the working capital to annual sales ratio remained well under control at 13.4%, close to the historically low level of 13.1% recorded at 31 December 2017 (14.5% at 31 December 2016 excluding the impact of the Den Braven acquisition).

Therefore, between 31 December 2017 and 31 December 2018, the Group's capital employed increased by €442 million to €6,996 million. The breakdown of capital employed by division (excluding corporate) was stable year on year: High Performance Materials represented 58%, Industrial Specialties 23% and Coating Solutions 19%. The breakdown of capital employed by region was as follows: the share of Asia and the rest of the world remained stable at 22%, the share of North America was 26% (23% in 2017), and the share of Europe stood at 52% (55% in 2017).

Deferred tax assets amounted to €209 million at 31 December 2018, €59 million higher than at 31 December 2017, mainly reflecting the recognition of deferred tax assets in France for past tax losses and temporary differences.

At 31 December 2018, gross provisions amounted to €879 million. Some of these provisions, accounting for a total of €79 million, are mainly covered by the guarantee facility granted by Total and described in note C.29.2 to the consolidated financial statements at 31 December 2018 (section 5.3.3 of this chapter) and therefore by long-term assets recognized in the balance sheet. These consist mainly of provisions related to former industrial sites in the United States. Accordingly, at 31 December 2018, provisions net of these non-current assets amounted to €800 million against €797 million at 31 December 2017.

The breakdown of net provisions by type was as follows: pension liabilities of €322 million (€321 million in 2017), other employee benefit obligations of €145 million (€139 million in 2017), environmental contingencies of €129 million (€132 million in 2017), restructuring provisions of €36 million (€42 million in 2017), and other provisions of €168 million (€163 million in 2017).

Between 31 December 2017 and 31 December 2018, net provisions for pension liabilities were stable overall as the positive impact of changes in discount rates, mainly in the United States, offset the negative impact of financial market trends on plan assets, especially at year-end. The other net provisions were globally stable over the same period.

Net debt amounted to €1,006 million at 31 December 2018 (against €1,056 million at 31 December 2017). The decrease can be explained by cash flows, as detailed in section 5.1.7 of this chapter, and by the negative currency effect on the portion of the Group's debt converted through swaps into US dollars. At end-December 2018, the Group's gearing decreased to 20% (from 24% at end-December 2017) and net debt (excluding the hybrid bond accounted for in equity) represented 0.7 times EBITDA for the year (the ratio at end-2017 was 0.8).

Shareholders' equity amounted to €5,028 million against €4,474 million at the end of 2017. The €554 million increase primarily included (i) €715 million in net income for the period, (ii) the payment of a dividend of €2.30 per share totaling €176 million, (iii) €53 million for share buybacks, (iv) €50 million in proceeds from a share capital increase reserved for employees carried out in April 2018, (v) €33 million in coupon paid in relation to the €700 million hybrid bond accounted for under "Dividends paid", and (vi) a negative €41 million translation effect primarily due to the appreciation of the euro against the US dollar.

5

5.2 TRENDS AND OUTLOOK

5.2.1 Trends

5.2.1.1 MAIN TRENDS

At the date of this document, the business environment in which the Group operates is characterized by (i) an overall soft demand which reflects geopolitical tensions, weakness in volumes in certain end markets such as automotive and consumer electronics and a soft pick-up in demand in China post Chinese New Year, and (ii) a stabilization in the costs of certain petrochemical raw materials, notably used in the Group's more downstream businesses. The start of the year should also be marked by the normalization of market conditions in the MMA/PMMA chain compared with the excellent conditions seen in the first half of 2018, by a materially lower contribution of specialty molecular sieves, which benefited, especially in the first quarter of 2018, of a particularly high density of projects finalized, as well as by the very high base of comparison in Fluorogases in 2018 compared with the 2017 reference base. The Group's performance over the first part of the year should notably reflect these factors.

Over the longer term, the global environment is also characterized by continuing regulatory and legislative changes in different parts of the world. In China, the environmental policy remains strict, leading to temporary plant shutdowns and additional costs for certain players in the country. The major sustainable development trends, such as lightweight materials, the development of new energies, the use of renewable raw materials and access to drinking water will continue to represent promising development opportunities for the Group over the medium and long-term.

At the date of this document, there is nothing to indicate that the long-term trends of the Group's main markets as described in chapter 1 and in the section "Profile, ambition and strategy" of this document might be significantly and durably affected. However, given the uncertainties surrounding the economic environment, the markets in which the Group operates, the cost of raw materials and energy and the variation in exchange rates, as well as the continuous developments in the regulatory environment, there is no guarantee that these trends will endure.

5.2.1.2 FACTORS LIKELY TO AFFECT THE GROUP'S OUTLOOK

Some of the statements regarding the Group's outlook contained in this document are based on the current opinions and assumptions of the Group's executive management. Those opinions and assumptions could be influenced by certain risks, both known and unknown, as well as by uncertainties, which could lead to actual results, performance or events differing substantially from such outlook. The main risk factors that may influence the Group's future results are described in section 2.1 of this document

5.2.2 Outlook

The start of the year remains characterized by a volatile environment and some geopolitical tensions which are somewhat weighing on global demand. In this context, Arkema will maintain its focus on internal momentum and the implementation of its long-term strategy.

Consequently, the Group continues the roll-out of its industrial projects to reinforce its positions in specialty businesses and higher-growth regions, its innovation drive for sustainable development, its acquisition momentum in adhesives, its operational excellence initiatives, as well as its policy of selectively raising its selling prices.

In 2019 [(1)], while remaining attentive to the development of the macro-economic environment, Arkema aims to demonstrate its resilience in this more complex environment and to consolidate its financial performance at high levels. In the first quarter, EBITDA is expected to be slightly below the very high comparison base of first-quarter 2018. For the full year, the Group aims to achieve an EBITDA comparable to the 2018 record level with momentum improving throughout the year, driven notably by the growth of specialty businesses.

The Group's medium and long-term ambition is detailed in the section "Profile, ambition and strategy" in the introduction of this document.

(1) 2019 takes into account the new IFRS 16 standard.

5.3 CONSOLIDATED FINANCIAL STATEMENTS

5.3.1 Statutory auditors' report on the consolidated financial statements

This is a translation into English of the statutory auditors' report on the consolidated financial statements of the Company issued in French and it is provided solely for the convenience of English speaking users.

This statutory auditors' report includes information required by European regulation or French law, such as information about the appointment of the statutory auditors or verification of the information concerning the Group presented in the management report.

This report should be read in conjunction with, and construed in accordance with, French law and professional auditing standards applicable in France.

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Département de KPMG S.A.

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Commissaire aux Comptes
Membre de la Compagnie Régionale de Versailles

Arkema

Year ended December 31, 2018

Statutory auditors' report on the consolidated financial statements

To the annual general meeting of Arkema,

Opinion

In compliance with the engagement entrusted to us by your annual general meetings, we have audited the accompanying consolidated financial statements of Arkema for the year ended 31 December 2018.

In our opinion, the consolidated financial statements give a true and fair view of the assets and liabilities and of the financial position of the Group as at 31 December 2018 and of the results of its operations for the year then ended in accordance with International Financial Reporting Standards as adopted by the European Union.

The audit opinion expressed above is consistent with our report to the Audit Committee.

Basis for opinion

Audit Framework

We conducted our audit in accordance with professional standards applicable in France. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Our responsibilities under those standards are further described in the "statutory auditors' Responsibilities for the Audit of the Consolidated Financial Statements" section of our report.

Independence

We conducted our audit engagement in compliance with independence rules applicable to us, for the period from January 1, 2018 to the date of our report, and specifically we did not provide any prohibited non-audit services referred to in Article 5(1) of regulation (EU) No. 537/2014 or in the French Code of Ethics (*Code de déontologie*) for statutory auditors.

Justification of Assessments – Key Audit Matters

In accordance with the requirements of Articles L. 823-9 and R. 823-7 of the French Commercial Code (*Code de commerce*) relating to the justification of our assessments, we inform you of the key audit matters relating to risks of material misstatement that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period, as well as how we addressed those risks.

These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on specific items of the consolidated financial statements.

Valuation of intangible assets and property, plant and equipment

Key audit matter	Your Group performs impairment tests on the recoverable value of its intangible assets and property, plant and equipment at least once per year. The methods for this testing are described in chapter B, Note 6 to the consolidated financial statements. As at 31 December 2018, these fixed assets, including goodwill, amounted to M€5,504 in net value, or 54% of total assets. The valuation of these fixed assets is a key audit matter due to their highly material amount in the consolidated financial statements of the Group and because the determination of their recoverable amount –based on future discounted cash flow projections – rely on the use of assumptions made by management, as stated in chapter B, Note 6 to the consolidated financial statements.
Our response	We assessed the compliance of the method applied by your Group with the accounting standards in force (IAS 36), particularly with regard to the identification of groups of assets for which the impairment tests are performed. We appraised the conditions of implementation for these impairment tests as well as the data and assumptions used. In particular, we: • analyzed the process for developing the cash flow projections used in the plan prepared by the Group for the purpose of impairment testing. We made sure that these projections had been approved by the general management; • compared the assumptions used for these tests with those in the five-year plan validated by the Executive Committee; • compared the estimates used for previous periods with the actual figures; • verified the mathematical accuracy of the calculations, including that of the sensitivity tests; • compared, against external references, the assumption consisting in using the same discount rate for all assets tested, and measured the sensitivity of the impairment tests with other assumptions considered to be reasonably likely; • analyzed the consistency of the information and the parameters used in these tests, firstly with regard to our knowledge of the sectors in which your Group operates and, secondly, with regard to our assessment of the five-year plan and our interviews with your Group's management controllers; • analyzed the compliance of the information provided in the Notes to the consolidated financial statements with IAS 36. Among the assets tested, we paid particular attention to those assets which present their own uncertainties.

Environmental risks

Key audit matter	The areas of activity in which your Group operates present a risk of incurring its environmental liability. Your Group assesses its exposure to these risks and presents, in its consolidated financial statements, an estimate of its liabilities and contingent liabilities relating to costs arising from commitments or legal, regulatory or contractual obligations, or those arising from the Group's practices or public commitments, as described in Notes 10 of chapter B and 4, 19.2 and 19.3 of chapter C to the consolidated financial statements. As at 31 December 2018, these provisions amounted to M€189. The liabilities and contingent liabilities are listed in chapter C, Note 20.1 to the consolidated financial statements. We considered the valuation and presentation in the Notes of these liabilities and contingent liabilities to be a key audit matter, in light of the fact that they are estimates, their sensitivity to regulatory developments, uncertainties as to the technical solutions to be implemented, and their materiality in the consolidated financial statements.
Our response	Our work, with the help of our environmental risk assessment specialists, consisted in: • assessing the procedures for identifying and listing the risks of incurring the Group's liability on environmental matters; • familiarizing ourselves with the risk analysis carried out by management, and the corresponding documentation; • assessing the assumptions used by your group to estimate exposure to those risks and justifying the amount of the provisions or their character of contingent liabilities; • comparing the information provided in the Notes to the consolidated financial statements with that required by IFRS. Further, among the environmental risks listed by the Group in contingent liabilities, we paid particular attention to the arguments or document provided to consider them as presenting a low probability of occurrence, or a low probability of an exit of resources.

Recognition of future tax savings in France

Key audit matter	Deferred tax assets relating to tax loss carry-forwards are only recorded if the Group has deferred tax liabilities for the same amount of these potential tax savings or if it considers that their recovery is probable. As at December 31, 2018, as presented in chapter C, Note 6.2 to the consolidated financial statements, you Group had recognized an amount of M€209 in deferred tax assets in the consolidated balance sheet for the global scope. An amount of M€59 was recognized in profit for the financial year. As at 31 December 2018, the overall amount of indefinite tax loss carry-forwards stands at M€1,247, which mostly originates from the French tax consolidation, and is presented in chapter C, Note 6.4 to the consolidated financial statements. As presented in chapter C, Note 6.1 to the consolidated financial statements, almost the entirety of the deferred tax assets recognized for the financial year originate from your Group's ability to generate taxable profits in France. As stated in chapter B, Note 13.2 to the consolidated financial statements, this ability is assessed by management at the close of each period by taking account of the profit forecasts determined by the Group and the history of taxable income. We considered the recognition of deferred tax assets relating to French tax loss carry-forwards to be a key audit matter due to their materiality and the degree of judgment used by management to assess the justification for recording the related deferred tax assets.
Our response	Our audit approach consisted in going over the documentation used by management to estimate the likelihood of being able to make future use of the tax loss carry-forwards in France ,generated at the closing date, notably with regard to : • existing deferred tax liabilities which could be offset against existing tax loss carry-forwards before their expiry, if any; and • the ability of the companies comprising the scope of the French tax consolidation to generate sufficient future taxable profits to allow absorption of the tax loss carry-forwards. We familiarized ourselves with the method used by management to identify existing tax loss carry-forwards at the closing date and evaluated the correct deferral of tax losses in the tax reports. In order to assess future taxable profits, we familiarized ourselves with and reviewed the forecasting process by: • familiarizing ourselves with the procedure for developing and approving the last taxable income forecast used for estimates; • familiarizing ourselves with the conclusions of the controls performed on the taxable profit by the tax administration; • comparing the forecasts made over several years with the actual taxable income; • analysing the evolution of the results of the companies making up the French tax consolidation scope; • reconciling the assumptions used by management to draw up the taxable income forecasts used to value deferred taxes with, firstly, those applied to the impairment testing of non-current assets and, secondly, those used in the strategic plan.

Specific Verifications

We have also performed, in accordance with professional standards applicable in France, the specific verifications required by laws and regulations of the information pertaining to the Group presented in the Board of Directors' management report.

We have no matters to report as to its fair presentation and its consistency with the consolidated financial statements.

We attest that the consolidated non-financial statement provided for by Article L. 225-102-1 of the French Commercial Code (*Code de commerce*) is included in the information pertaining to the Group presented in the management report, it being specified that, in accordance with the provisions of article L. 823-10 of said Code, we have verified neither the fair presentation nor the consistency with the financial statements of the information contained in this statement, which has to be subject to a report by an independent third party.

Report on Other Legal and Regulatory Requirements

Appointment of the statutory auditors

We were appointed as statutory auditors of Arkema by your Annual general meeting held on June 23, 2005 for KPMG Audit, a department of KPMG Audit, département du cabinet KPMG S.A., and on 10 May 2006 for ERNST & YOUNG Audit.

As at December 31, 2018, KPMG Audit, département de KPMG S.A., was in the fourteenth year of total uninterrupted engagement, including thirteen years since the securities of the Company were admitted to trading on a regulated market, and ERNST & YOUNG Audit was in the thirteenth year.

Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with International Financial Reporting Standards as adopted by the European Union and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless it is expected to liquidate the Company or to cease operations.

The Audit Committee is responsible for monitoring the financial reporting process and the effectiveness of internal control and risks management systems and where applicable, its internal audit, regarding the accounting and financial reporting procedures.

The consolidated financial statements were approved by the Board of Directors.

Statutory auditors' Responsibilities for the Audit of the Consolidated Financial Statements

Objectives and audit approach

Our role is to issue a report on the consolidated financial statements. Our objective is to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with professional standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As specified in Article L.823-10-1 of the French Commercial Code (*Code de commerce*), our statutory audit does not include assurance on the viability of the Company or the quality of management of the affairs of the Company.

As part of an audit conducted in accordance with professional standards applicable in France, the statutory auditor exercises professional judgment throughout the audit and furthermore:

- identifies and assesses the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, designs and performs audit procedures responsive to those risks, and obtains audit evidence considered to be sufficient and appropriate to provide a basis for his opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtains an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the internal control;
- Evaluates the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management in the consolidated financial statements;
- assesses the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. This assessment is based on the audit evidence obtained up to the date of his audit report. However, future events or conditions may cause the Company to cease to continue as a going concern. If the statutory auditor concludes that a material uncertainty exists, there is a requirement to draw attention in the audit report to the related disclosures in the consolidated financial statements or, if such disclosures are not provided or inadequate, to modify the opinion expressed therein;
- evaluates the overall presentation of the consolidated financial statements and assesses whether these statements represent the underlying transactions and events in a manner that achieves fair presentation;
- obtains sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. The statutory auditor is responsible for the direction, supervision and performance of the audit of the consolidated financial statements and for the opinion expressed on these consolidated financial statements.

Report to the Audit Committee

We submit to the Audit Committee a report which includes in particular a description of the scope of the audit and the audit program implemented, as well as the results of our audit. We also report, if any, significant deficiencies in internal control regarding the accounting and financial reporting procedures that we have identified.

Our report to the Audit Committee includes the risks of material misstatement that, in our professional judgment, were of most significance in the audit of the consolidated financial statements of the current period and which are therefore the key audit matters that we are required to describe in this report.

We also provide the Audit Committee with the declaration provided for in Article 6 of regulation (EU) No 537/2014, confirming our independence within the meaning of the rules applicable in France such as they are set in particular by Articles L. 822-10 to L. 822-14 of the French Commercial Code (*Code de commerce*) and in the French Code of Ethics (*Code de déontologie*) for statutory auditors. Where appropriate, we discuss with the Audit Committee the risks that may reasonably be thought to bear on our independence, and the related safeguards.

Paris-La Défense, February 26, 2019

The statutory auditors

French original signed by

KPMG Audit

Department of KPMG S.A.

Bertrand Desbarrières
Partner

François Quédiniac
Partner

ERNST & YOUNG Audit

Denis Thibon
Partner

5.3.2 Consolidated financial statements at 31 December 2018

CONSOLIDATED INCOME STATEMENT

(In millions of euros)	Notes	2018	2017
Sales	(C2&C3)	**8,816**	**8,326**
Operating expenses		(6,841)	(6,467)
Research and development expenses		(237)	(235)
Selling and administrative expenses		(747)	(727)
Other income and expenses	(C4)	(63)	(52)
Operating income	(C2)	**928**	**845**
Equity in income of affiliates	(C11)	2	1
Financial result	(C5)	(101)	(103)
Income taxes	(C6)	(114)	(162)
Net income		**715**	**581**
Of which: non-controlling interests		8	5
Net income – Group share		**707**	**576**
Earnings per share (amount in euros)	(C8)	8.84	7.17
Diluted earnings per share (amount in euros)	(C8)	8.82	7.15

The accounting policies applied in preparing the consolidated financial statements at 31 December 2018 are identical to those used in the consolidated financial statements at 31 December 2017, except for the policies described at the start of note B “Accounting policies”.

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

(In millions of euros)	Notes	2018	2017
Net income		**715**	**581**
Hedging adjustments		1	20
Other items		(7)	(4)
Deferred taxes on hedging adjustments and other items		-	-
Change in translation adjustments	(C17.6)	41	(200)
Other recyclable comprehensive income		**35**	**(184)**
Actuarial gains and losses	(C18.2)	(3)	32
Deferred taxes on actuarial gains and losses		(1)	(11)
Other non-recyclable comprehensive income		**(4)**	**21**
TOTAL INCOME AND EXPENSES RECOGNIZED DIRECTLY THROUGH EQUITY		**31**	**(163)**
Comprehensive income		**746**	**418**
Of which: non-controlling interests		9	5
Comprehensive income – Group share		**737**	**413**

CONSOLIDATED BALANCE SHEET

(In millions of euros)	Notes	31 December 2018	31 December 2017
ASSETS			
Intangible assets, net	(C9)	2,877	2,706
Property, plant and equipment, net	(C10)	2,627	2,464
Investments in equity affiliates	(C11)	38	30
Other investments	(C12)	33	30
Deferred tax assets	(C6)	209	150
Other non-current assets	(C13)	243	230
TOTAL NON-CURRENT ASSETS		**6,027**	**5,610**
Inventories	(C14)	1,136	1,145
Accounts receivable	(C15)	1,247	1,115
Other receivables and prepaid expenses	(C15)	173	181
Income taxes recoverable	(C6)	80	70
Other current financial assets	(C23)	7	17
Cash and cash equivalents	(C16)	1,441	1,438
TOTAL CURRENT ASSETS		**4,084**	**3,966**
TOTAL ASSETS		**10,111**	**9,576**
LIABILITIES AND SHAREHOLDERS' EQUITY			
Share capital	(C17)	766	759
Paid-in surplus and retained earnings		4,099	3,575
Treasury shares		(28)	(2)
Translation adjustments	(C17.6)	142	101
SHAREHOLDERS' EQUITY – GROUP SHARE		**4,979**	**4,433**
Non-controlling interests		49	41
TOTAL SHAREHOLDERS' EQUITY		**5,028**	**4,474**
Deferred tax liabilities	(C6)	268	271
Provisions for pensions and other employee benefits	(C18)	470	460
Other provisions and non-current liabilities	(C19)	433	443
Non-current debt	(C21)	2,246	2,250
TOTAL NON-CURRENT LIABILITIES		**3,417**	**3,424**
Accounts payable	(C24)	1,037	965
Other creditors and accrued liabilities	(C24)	343	377
Income taxes payable	(C6)	78	82
Other current financial liabilities	(C23)	7	10
Current debt	(C21)	201	244
TOTAL CURRENT LIABILITIES		**1,666**	**1,678**
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY		**10,111**	**9,576**

CONSOLIDATED CASH FLOW STATEMENT

(In millions of euros)	Notes	2018	2017
Net income		715	581
Depreciation, amortization and impairment of assets		508	501
Provisions, valuation allowances and deferred taxes		(81)	(41)
(Gains)/losses on sales of assets		(3)	(2)
Undistributed affiliate equity earnings		(1)	2
Change in working capital	(C28)	(130)	(41)
Other changes		21	8
Cash flow from operating activities		**1,029**	**1,008**
Intangible assets and property, plant, and equipment additions	(C1.3)	(591)	(459)
Change in fixed asset payables		53	6
Acquisitions of operations, net of cash acquired	(C7)	(201)	(1)
Increase in long-term loans		(59)	(60)
Total expenditures		**(798)**	**(514)**
Proceeds from sale of intangible assets and property, plant, and equipment		4	10
Change in fixed asset receivables		-	0
Proceeds from sale of operations, net of cash sold		-	11
Proceeds from sale of unconsolidated investments		-	0
Repayment of long-term loans		51	45
Total divestitures		**55**	**66**
Cash flow from investing activities		**(743)**	**(448)**
Issuance (repayment) of shares and paid-in surplus	(C17.1)	54	3
Purchase of treasury shares	(C17.3)	(53)	(17)
Dividends paid to parent company shareholders	(C17.4)	(176)	(155)
Interest paid to bearers of subordinated perpetual notes	(C17.2)	(33)	(33)
Dividends paid to non-controlling interests		(4)	(4)
Increase in long-term debt		1	902
Decrease in long-term debt		(18)	(32)
Increase/decrease in short-term debt		(39)	(472)
Cash flow from financing activities		**(268)**	**192**
Net increase/(decrease) in cash and cash equivalents		18	752
Effect of exchange rates and changes in scope		(15)	63
Cash and cash equivalents at beginning of period		1,438	623
CASH AND CASH EQUIVALENTS AT END OF PERIOD	(C16)	**1,441**	**1,438**

CONSOLIDATED STATEMENT OF CHANGES IN SHAREHOLDERS' EQUITY

(In millions of euros)	Share capital	Paid-in surplus	Hybrid bonds	Retained earnings	Translation adjustments	Treasury shares	Shareholders' equity – Group share	Non-controlling interests	Shareholders' equity
At 1 January 2018	**759**	**1,216**	**689**	**1,670**	**101**	**(2)**	**4,433**	**41**	**4,474**
Cash dividend	-	-	-	(209)	-	-	(209)	(4)	(213)
Issuance of share capital	7	47	-	-	-	-	54	-	54
Purchase of treasury shares	-	-	-	-	-	(53)	(53)	-	(53)
Grants of treasury shares to employees	-	-	-	(27)	-	27	-	-	-
Share-based payments	-	-	-	20	-	-	20	-	20
Other	-	-	-	(3)	-	-	(3)	3	-
Transactions with shareholders	**7**	**47**	**-**	**(219)**	**-**	**(26)**	**(191)**	**(1)**	**(192)**
Net income	-	-	-	706	-	-	706	9	715
Total income and expenses recognized directly through equity	-	-	-	(10)	41	-	31	-	31
Comprehensive income	**-**	**-**	**-**	**696**	**41**	**-**	**737**	**9**	**746**
At 31 December 2018	**766**	**1,263**	**689**	**2,147**	**142**	**(28)**	**4,979**	**49**	**5,028**

(In millions of euros)	Share capital	Paid-in surplus	Hybrid bonds	Retained earnings	Translation adjustments	Treasury shares	Shareholders' equity – Group share	Non-controlling interests	Shareholders' equity
At 1 January 2017	**757**	**1,211**	**689**	**1,250**	**301**	**(4)**	**4,204**	**45**	**4,249**
Cash dividend	-	-	-	(188)	-	-	(188)	(4)	(192)
Issuance of share capital	2	5	-	-	-	-	7	-	7
Purchase of treasury shares	-	-	-	-	-	(17)	(17)	-	(17)
Grants of treasury shares to employees	-	-	-	(19)	-	19	-	-	-
Share-based payments	-	-	-	13	-	-	13	-	13
Other	-	-	-	1	-	-	1	(5)	(4)
Transactions with shareholders	**2**	**5**	**-**	**(193)**	**-**	**2**	**(184)**	**(9)**	**(193)**
Net income	-	-	-	576	-	-	576	5	581
Total income and expenses recognized directly through equity	-	-	-	37	(200)	-	(163)	-	(163)
Comprehensive income	**-**	**-**	**-**	**613**	**(200)**	**-**	**413**	**5**	**418**
At 31 December 2017	**759**	**1,216**	**689**	**1,670**	**101**	**(2)**	**4,433**	**41**	**4,474**

5.3.3 Notes to the consolidated financial statements

A. Highlights

1. PORTFOLIO MANAGEMENT

Arkema made several acquisitions in adhesives in 2018. The following operations were undertaken by Bostik:

- acquisition on January 2 of the assets of XL Brands, one of the leaders in floor covering adhesives in the United States. This transaction was based on a US$ 205 million enterprise value;
- completion in August of the purchase of the industrial adhesives of Nitta-Gelatin Inc. in Japan, which generate annual sales of approximately €30 million; and
- the announcement in October 2018 of the acquisition of Afinitica, a company specializing in instant adhesives, also known as cyanoacrylates.

The impacts of these operations are detailed in note C.7 “Business combinations”.

In the High Performance Materials business division, in September 2018 Arkema announced the formation with Barrday Inc. of a joint venture named Barrflex TU to make and market high performance composite solutions for the oil and gas market.

In Acrylics, Arkema and Jurong Chemical reached agreement in November 2018 on the purchase by Arkema of Jurong Chemical’s interest in Taixing Sunke Chemicals, their joint venture that produces acrylic monomers in China. The Group would thus become the sole shareholder of the company, with an impact on its net debt estimated at around €70 million. The operation requires the approval of the competent authorities in China, and could be completed in the second quarter of 2019. Until then, the joint venture will continue to be considered as a joint operation, and it is thus 50% consolidated in the Group’s consolidated financial statements.

2. OTHER HIGHLIGHTS

In April 2018, Arkema carried out a capital increase reserved for employees. 610,405 shares were subscribed at the price of €81.97 per share, giving a total amount of €50 million (see note C17 “Shareholders’ equity” and C27 “Share-based payments”).

B. Accounting policies

Arkema is a French limited liability company *(société anonyme)* with a Board of Directors, subject to the provisions of book II of the French Commercial Code and all other legal provisions applicable to French commercial companies.

The Company’s head office is at 420 rue d’Estienne d’Orves, 92700 Colombes (France). It was incorporated on 31 January 2003 and the shares of Arkema have been listed on the Paris stock exchange (Euronext) since 18 May 2006.

The Group’s consolidated financial statements at 31 December 2018 were prepared under the responsibility of the Chairman and CEO of Arkema and were approved by the Board of Directors of Arkema on 26 February 2019. They will be submitted to the approval of the shareholders’ general meeting of 21 May 2019.

The consolidated financial statements at 31 December 2018 were prepared in accordance with the international accounting standards issued by the IASB (International Accounting Standards Board) as released at 31 December 2018 and the international standards endorsed by the European Union at 31 December 2018.

The accounting framework and standards adopted by the European Commission can be accessed from the following website: https://ec.europa.eu/info/law/international-accounting-standards-regulation-ec-no-1606-2002

The accounting policies applied in preparing the consolidated financial statements at 31 December 2018 are identical to those used in the consolidated financial statements at 31 December 2017, except for IFRS standards, amendments and interpretations, as adopted by the European Union and the IASB, that are obligatorily applicable for accounting periods commencing on or after 1 January 2018 (and which had not been applied early by the Group), namely:

Amendments to IAS 40	Transfers of investment property	Adopted by the European Union on 15 March 2018
Amendments to IFRS 2	Classification and measurement of share-based payment transactions	Adopted by the European Union on 27 February 2018
Amendments to IFRS 4	Applying IFRS 9 'Financial Instruments' with IFRS 4	Adopted by the European Union on 9 November 2017
IFRS 9	Financial instruments	Adopted by the European Union on 29 November 2016
IFRS 15	Revenue from contracts with customers	Adopted by the European Union on 29 October 2016
Clarifications to IFRS 15	Revenue from contracts with customers	Adopted by the European Union on 9 November 2017
	Annual improvements to IFRS standards - 2014-2016 cycle	Adopted by the European Union on 8 February 2018
IFRIC 22 Interpretations	Foreign currency transactions and advance consideration	Adopted by the European Union on 3 April 2018

The standards, amendments and interpretations published by the IASB and the IFRS IC (IFRS Interpretations Committee) which were not yet in force for years beginning on or after 1 January 2018 and have not been applied early by the Group, are:

Amendments to IAS 1 and IAS 8	Definition of material	Not adopted by the European Union at 31 December 2018
Amendments to IAS 19	Plan amendment, curtailment or settlement	Not adopted by the European Union at 31 December 2018
Amendments to IAS 28	Long-term interests in associates and joint ventures	Not adopted by the European Union at 31 December 2018
Amendments to IFRS 9	Prepayment features with negative compensation	Adopted by the European Union on 26 March 2018
Amendments to IFRS 9, IFRS 7 and IAS 39	Mandatory effective date and transition disclosures	Not adopted by the European Union at 31 December 2018
Amendments to IFRS 9	Hedge accounting and amendments to IFRS 9, IFRS 7 and IAS 39	Not adopted by the European Union at 31 December 2018
Amendments to IFRS 10 and IAS 28	Sale or contribution of assets between an investor and its associate/joint venture	Not adopted by the European Union at 31 December 2018
Conceptual framework	Amendments to references to the conceptual framework	Not adopted by the European Union at 31 December 2018
IFRS 16*	Leases	Adopted by the European Union on 9 November 2017
IFRS 17	Insurance contracts	Not adopted by the European Union at 31 December 2018
IFRIC 23 Interpretations	Uncertainty over income tax treatments (IAS12)	Adopted by the European Union on 24 October 2018
	Annual improvements to IFRS standards - 2015-2017 cycle	Not adopted by the European Union at 31 December 2018

**See C29 "Off-balance sheet commitments"*

Application of IFRS 9 and IFRS 15, and the interpretations and amendments listed above, had no significant impact on the financial statements at 31 December 2018. Details of progress on the Group's work concerning IFRS 16, which is applicable from 1 January 2019, are provided in note C29.1.2 "Lease commitments". Arkema has not opted for early adoption of IFRS 16. The Group does not expect application of IFRIC 23 on the accounting treatment of uncertainties regarding income tax to have a significant impact.

Preparation of consolidated financial statements in accordance with IFRS requires Group management to make estimates and determine assumptions that can have an impact on the amounts recognized in assets and liabilities at the balance sheet date, and have a corresponding impact on the income statement. Management made its estimates and determined its assumptions on the basis of past experience and taking into account different factors considered to be reasonable for the valuation of assets and liabilities. Use of different assumptions could have a material effect on these valuations. The main assumptions made by management in preparing the financial statements are those used for measuring the recoverable value of property, plant and equipment and intangible assets, pension benefit obligations, deferred taxes and provisions. The disclosures provided concerning contingent assets and liabilities and off-balance sheet commitments at the date of preparation of the consolidated financial statements also involve the use of estimates.

The consolidated financial statements are prepared in accordance with the historical cost convention, except for certain financial assets and liabilities which are recognized at fair value.

The consolidated financial statements are presented in millions of euros, rounded to the nearest million, unless otherwise indicated.

The principal accounting policies applied by the Group are presented below.

1. CONSOLIDATION PRINCIPLES

All material transactions between consolidated companies, and all intercompany profits, have been eliminated.

1.1 Control and joint control

The Group controls an entity when all of the three following conditions are fulfilled:

(i) the Group holds power over the entity (has effective rights conferring a current ability to direct the entity's relevant activities);

(ii) the Group is exposed or entitled to variable returns; and

(iii) the Group has the ability to use its power over the investee to influence the amount of the returns received.

Joint control is the contractually agreed sharing of control over an arrangement. It exists only when the decisions about the relevant activities require the unanimous consent of the parties sharing control.

1.2 Full consolidation

Companies controlled directly or indirectly by the Group are fully consolidated.

1.3 Joint arrangements

A joint arrangement is an operation over which two or more parties have joint control.

There are two categories of joint arrangements:

- a joint operation is a joint arrangement in which the parties have rights to the assets and obligations for the liabilities. The Group recognizes the assets, liabilities, income and expenses in proportion to its percentage of interest in the capital of the joint operation; and
- a joint venture is a joint arrangement in which the parties have rights to the net assets of the arrangement. The Group applies the equity method to this type of joint arrangement.

To determine the type of joint arrangement, the Group must take the following factors into consideration:

- the structure of the joint arrangement (identifying whether it takes the form of a separate vehicle); and
- when the joint arrangement takes the form of a separate vehicle: the legal form, the terms of the contractual arrangements and other facts and circumstances.

Assessment of other facts and circumstances has led the Group to classify a certain number of joint arrangements as joint operations.

1.4 Investments in associates

An associate is an entity over which the Group exercises significant influence. If the Group directly or indirectly holds 20% or more of the voting rights in the issuing entity, it is presumed to exercise significant influence. If it holds less than 20%, significant influence must be demonstrated.

Investments in associates are accounted for under the equity method.

1.5 Non-controlling interest

Shares owned in companies which do not meet the criteria set out in 1.1 to 1.4 are included in Other investments and recognized in accordance with IFRS 9 (see note B7.1, "Other investments").

2. FOREIGN CURRENCY TRANSLATION

2.1 Translation of financial statements of foreign companies

The functional operating currency of foreign companies in the scope of consolidation is their local currency, in which most of their transactions are denominated. Their balance sheets are translated into euros on the basis of exchange rates at the end of the period; the statements of income and of cash flows are translated using the average exchange rates during the period. Foreign exchange differences resulting from translation of the financial statements of these subsidiaries are recorded either in "Translation adjustments" in shareholders' equity in the consolidated financial statements for the Group share, or in "Non-controlling interests" for the share not directly or indirectly attributable to the Group. In exceptional cases a company's functional currency may differ from the local currency.

2.2 Transactions in foreign currencies

In application of IAS 21 "The effects of changes in foreign exchange rates", transactions denominated in foreign currencies are translated by the entity carrying out the transaction into its functional currency at the exchange rate applicable on the transaction date. Monetary balance sheet items are restated at the closing exchange rate at the balance sheet date. Gains and losses resulting from translation are recognized in recurring operating income, unless they result from unhedged financing, in which case they are included in the financial result.

3. GOODWILL AND BUSINESS COMBINATIONS

Operations after 1 January 2010

The Group uses the acquisition method for the recognition of business combinations, in accordance with IFRS 3 (Revised).

The identifiable assets acquired and liabilities assumed are stated at fair value at the acquisition date.

Where the business combination agreement provides for a purchase price adjustment, the Group includes the fair value of this adjustment at the acquisition date in the cost of the business combination, even if the adjustment is optional.

Non-controlling interests are measured at the acquisition date, either at fair value (the full goodwill method) or the NCI's proportionate share of net assets of the entity acquired (the partial goodwill method). The decision of which option to use is made for each business combination. Subsequent acquisitions of investments are always recorded in equity, regardless of the choice made at the time of the acquisition.

At the acquisition date, goodwill is measured as the difference between:

- the acquisition price plus the amount of any non-controlling interests in the acquired entity and the fair value of the acquirer's previously-held equity interest in that acquired entity; and
- the fair value of identifiable assets and liabilities.

Goodwill is recognized in the balance sheet assets. Contingent liabilities are recognized in the balance sheet when the obligation concerned is current at the acquisition date and their fair value can be reliably measured.

Any negative goodwill arising on an acquisition on favourable terms, and direct acquisition expenses, are recognized immediately in the income statement under "Other income and expenses" (see note B12 "Income statement items").

The Group has a maximum of 12 months to finalize determination of the acquisition price and goodwill.

Operations prior to 31 December 2009

The Group applied IFRS 3. The main points affected by IFRS 3 (revised) are the following:

- goodwill was calculated as the difference between the purchase price, as increased by related costs, of shares of consolidated companies and the Group share of the fair value of their net assets and contingent liabilities at the acquisition date;
- for any subsequent acquisition in the same entity, the difference between the acquisition cost and book value of non-controlling interests was included in goodwill;
- price adjustments were included in the cost of the business combination if the adjustment was probable and could be measured reliably; and
- contingent liabilities arising from potential obligations were recognized.

4. INTANGIBLE ASSETS

Intangible assets principally include goodwill, patents and technologies, trademarks, software and IT licences, capitalized contracts, leasehold rights, customer relations, and capitalized research expenses. Intangible assets are recognized in the balance sheet at their acquisition or production cost, less any accumulated amortization and impairment losses recognized.

Intangible assets other than goodwill and trademarks with indefinite useful lives are amortized on a straight-line basis over 3 to 20 years depending on the pattern according to which the entity envisages using the future economic benefits related to the asset.

The main categories of intangible assets and the amortization periods applied by the Group are as follows:

- patents: residual period until expiry of patent protection;
- technologies: average useful life;
- software: 3 to 10 years;
- licences: term of the contract;
- capitalized contracts: term of the contract;
- customer relations: average useful life;
- capitalized research expenses: useful life of the project;
- REACH registration fees: protection period of study data.

4.1 Goodwill

Goodwill is not amortized. It is subject to impairment tests as soon as any indicators of potential impairment are identified. Impairment tests are performed at least annually. The methodology used for the performance of impairment tests is described in paragraph B6 "Impairment of long-lived assets".

Goodwill is measured and recognized as described in note B3 "Goodwill and business combinations".

4.2 Trademarks

Trademarks are valued by the relief-from-royalty method.

4.3 Software and IT licences

Software development expenses for the design, programming and test phases are capitalized.

Training costs, expenses related to change management, data transfer and subsequent maintenance costs are recorded as expenses.

4.4 Capitalized research and development costs

Under IAS 38 "Intangible assets", development costs are capitalized as soon as the Group can demonstrate, in particular:

- its intention and its financial and technical ability to complete the development project;

- that it is probable that future economic benefits attributable to the development costs will flow to the enterprise, which also implies having successfully completed the main non-toxicity studies relating to the new product; and
- that the cost of the asset can be measured reliably.

Grants received in respect of development activities are recognized as a deduction from capitalized development costs if they have been definitively earned by the Group. The Group also receives public financing in the form of repayable advances for the development of certain projects. Repayment of these advances is generally related to the future revenues generated by the development. The Group recognizes these advances in balance sheet liabilities (in the "Other non-current liabilities" caption) taking account of the probability of their repayment.

4.5 REACH

As no specific IFRS IC interpretations exist on the subject, the Group applies the following methods based on IAS 38:

- when most of the tests required for preparing the registration file have been acquired from a third party, the Group records an operating right in the intangible assets;
- when most of the expenses involved in preparing the registration file have been carried out internally or outsourced, the Group capitalizes the development costs that meet the requirements for capitalization defined by IAS 38 (see B4.4 "Capitalized Research and development costs").

5. PROPERTY, PLANT & EQUIPMENT

5.1 Gross value

The gross value of items of property, plant and equipment corresponds to their acquisition or production cost in accordance with IAS 16 "Property, plant & equipment". Gross value is not subject to revaluation.

Equipment subsidies are deducted directly from the cost of the assets which they financed. With effect from 1 January 2009 and in accordance with the revised version of IAS 23, borrowing costs that are directly attributable to financing tangible assets that necessarily take a substantial period of time to get ready for their intended use or sale are eligible for capitalization as part of the cost of the assets for the portion of the cost incurred over the construction period.

Routine maintenance and repairs are charged to income in the period in which they are incurred. Costs related to major maintenance turnarounds of industrial facilities which take place at intervals greater than 12 months are capitalized at the time they are incurred and depreciated over the period between two such turnarounds.

Fixed assets which are held under finance lease contracts, as defined in IAS 17 "Leases", which have the effect of transferring substantially all the risks and rewards inherent to ownership of the asset from the lessor to the lessee, are capitalized in assets at their market value or at the discounted value of future lease payments if lower (such assets are depreciated using the methods and useful lives described below). The corresponding lease obligation is recorded as a liability. Leases which do not meet the above definition of finance leases are accounted for as operating leases.

5.2 Depreciation

Depreciation is calculated on a straight-line basis on the basis of the acquisition or production cost. Assets are depreciated over their estimated useful lives by category of asset. The principal categories and useful lives are as follows:

• machinery and tools:	5 - 10 years
• transportation equipment:	5 - 20 years
• specialized complex installations:	10 - 20 years
• buildings:	10 - 30 years

These useful lives are reviewed annually and modified if expectations change from the previous estimates. Such changes in accounting estimate are accounted for on a prospective basis.

6. IMPAIRMENT OF LONG-LIVED ASSETS

The recoverable amount of property, plant and equipment and intangible assets is tested as soon as any indication of impairment is identified. A review to identify if any such indication exists is performed at each year-end, based on a 5-year plan validated by the Executive Committee. This impairment test is performed at least once a year and includes goodwill and trademarks with indefinite useful lives.

An asset's recoverable amount corresponds to the greater of its value in use and its fair value net of costs of disposal.

Tests are performed for each autonomous group of assets, termed Cash Generating Units (CGUs). A CGU is a group of assets whose continued use generates cash flows that are substantially independent of cash flows generated by other groups of assets. They are worldwide business operations, which bring together groups of similar products in strategic, commercial and industrial terms. For the Group, the CGUs are the activities as presented in note C2 "Information by business division". The value in use of a CGU is determined on the basis of the discounted future cash flows that are expected to be generated by the assets in question, based upon Group management's expectation of future economic and operating conditions over the next 5 years or, when the asset is to be sold, by comparison with its market value. In 2018, the terminal value was determined on the basis of a perpetuity annual growth rate of 1.5% (the same rate as used in 2017) and mid-cycle cash flow. The after-tax rate used to discount future cash flows and the terminal value is the Group's weighted average cost of capital, estimated at 7.5% in 2018 (the same rate as used in 2017). Any impairment is calculated as the difference between the recoverable amount and the carrying amount of the CGU. Because of its unusual nature, any such impairment is presented separately in the income statement under the "Other income and expenses" caption. Impairment may be reversed, to the maximum carrying amount that would have been recognized for the asset had the asset not been impaired. Impairment losses on goodwill are irreversible (in application of IFRIC 10, impairment losses on goodwill recognized in previous interim accounting periods cannot be written back).

Sensitivity analyses carried out at 31 December 2018 evaluating the impact of reasonable changes in the basic assumptions, and in particular the impact of a change of plus or minus 1 point in the discount rate and plus or minus 0.5 point in the perpetuity growth rate, have confirmed the carrying amounts of the different CGUs.

7. FINANCIAL ASSETS AND LIABILITIES

Financial assets and liabilities principally comprise:

- other investments;
- loans and financial receivables included in other non-current assets;
- accounts receivable;
- cash and cash equivalents;
- debt and other financial liabilities (including accounts payable); and
- derivatives, reported as part of other current assets and liabilities.

7.1 Other investments

These securities are recognized at fair value in accordance with IFRS 9. In cases where fair value cannot be reliably determined, they are recognized at their historical cost. At the date of application of IFRS 9, the Group opted to record changes in the fair value of unconsolidated investments in "Other comprehensive income", except for investments in the process of liquidation.

7.2 Loans and financial receivables

These financial assets are recognized at amortized cost. They are subject to impairment tests involving a comparison of their carrying amount to the present value of estimated recoverable future cash flows. These tests are carried out as soon as any indicator inferring that the present value of these assets is lower than their carrying amount is identified. As a minimum such tests are performed at each balance sheet date. Any impairment loss is recognized in recurring operating income.

7.3 Accounts receivable

Accounts receivable are initially recognized at their fair value. Subsequent to initial recognition, they are recognized at amortized cost. If required, a bad debt provision is recognized on the basis of the risk of non-recovery of the receivables.

7.4 Cash and cash equivalents

Cash and cash equivalents are liquid assets and assets which can be converted into cash within less than 3 months that are subject to a negligible risk of change in value.

7.5 Non-current and current debt (including accounts payable)

Non-current and current debt (other than derivatives) is recognized at amortized cost.

7.6 Derivatives

The Group may use derivatives to manage its exposure to foreign currency risks and risks of changes in the prices of raw materials and energy. Derivatives used by the Group are recognized at their fair value in the balance sheet, in accordance with IFRS 9. The fair value of these unlisted derivatives is determined by reference to current prices for contracts with similar maturity. They therefore correspond to the "Level 2" category defined in IFRS 7.

Changes in the fair value of these derivatives are recognized within operating income and, for foreign currency instruments, in financial result for the portion of foreign exchange gains and losses corresponding to the interest income/expense reflected by the differences between the spot exchange rate and the forward exchange rate, except for those on instruments which are considered to meet the criteria for cash flow hedge accounting or hedge accounting of a net investment in a foreign operation under IFRS 9.

For items that qualify for cash flow hedge accounting, the effective portion of the change in fair value is recognized in shareholders' equity under the "Income and expense recognized directly through equity" caption until such time as the underlying hedged item is recognized through the income statement. Any ineffective portion is recognized in operating income.

A hedge of a net investment in a foreign operation hedges the exposure to foreign exchange risk of the net assets of the foreign operation (IAS 21, "The effects of changes in foreign exchange rates"). The effects of this hedge are recorded directly in shareholders' equity under the "Income and expense recognized directly through equity" caption.

8. INVENTORIES

Inventories are valued in the consolidated financial statements at the lower of cost and net realizable value, in accordance with IAS 2 "Inventories". Cost of inventories is generally determined using the weighted average cost (WAC) method.

Cost of manufactured products inventories includes raw material and direct labour costs, and an allocation of production overheads and depreciation based on normal production capacity. Start-up costs and general and administrative costs are excluded from the cost of manufactured products inventories.

The net realizable value is the sale price as estimated for the normal course of business, less estimated costs for completion and sale.

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9. PROVISIONS FOR PENSIONS AND OTHER LONG-TERM BENEFITS

In accordance with IAS 19 (Revised) "Employee benefits":

- payments made in the context of defined contribution plans are recognized in expenses of the period; and
- obligations in respect of defined benefit plans are recognized and valued using the actuarial projected unit credit method.

Post-employment benefits

For defined benefit plans, the valuation of obligations under the projected unit credit method principally takes into account:

- an assumption concerning the date of retirement;
- a discount rate which depends on the geographical region and the duration of the obligations;
- an inflation rate;
- assumptions in respect of future increases in salaries, rates of employee turnover and increases in health costs; and
- the most recent mortality statistics for the countries concerned.

Returns on plan assets are in line with discount rates.

Differences which arise between the valuation of obligations and forecasts of such obligations (on the basis of new projections or assumptions) and between forecasts and outcomes of returns on plan assets are termed actuarial gains and losses, and are recorded in other non-recyclable comprehensive income.

When a plan is amended or created, the entire past service cost is immediately recognized in the income statement.

A pension asset may be generated where a defined benefit plan is overfunded. The amount at which such an asset is recognized in the balance sheet may be subject to a ceiling, in application of IAS 19.64 and IFRIC 14.

Other long-term benefits

In respect of other long-term benefits, and in accordance with applicable laws and regulations, provisions are recognized using a simplified method. Thus, if an actuarial valuation using the projected unit cost method is required, actuarial gains and losses and all past service costs are recognized immediately in the provision, with a corresponding entry being recognized to the income statement.

The net expense related to pension benefit obligations and other employee benefit obligations is recognized in recurring operating income, with the exception of:

- the effect of curtailments or settlements of plans, which are presented under the "Other income and expenses" caption in the case of substantial modifications to such plans; and
- the net interest expense and the actuarial gains and losses related to changes in the discount rate on other long-term benefits, which are classified within the financial result caption.

10. OTHER PROVISIONS AND OTHER NON-CURRENT LIABILITIES

A provision is recognized when:

- the Group has a legal, regulatory or contractual obligation to a third party resulting from past events. An obligation can also result from Group practices or public commitments that create a reasonable expectation among the third parties in question that the Group will assume certain responsibilities;
- it is certain or probable that the obligation will lead to an outflow of resources to the benefit of the third party; and
- its amount can be estimated reliably and corresponds to the best possible estimate of the commitment. In exceptional cases where the amount of the obligation cannot be measured with sufficient reliability, disclosure is made in the notes to the financial statements in respect of the obligation (see note C20 "Liabilities and contingent liabilities").

Provisions for protection of the environment, which are established or reviewed when a business is closed down or upon a formal request from the authorities, are the subject of an internal review every two years. These provisions are recognized or updated by a dedicated team which calls in specialized external assistance as and when required by the matters identified.

When it is expected that the Group will obtain partial or total reimbursement of the cost that was provided against, the expected reimbursement is recognized in receivables if, and only if, the Group is virtually certain of the receipt.

Long-term provisions, other than provisions for pensions and post-employment benefit obligations, are not inflation-indexed or discounted as the Group considers that the impact of such adjustments would not be significant.

The current (less than one year) portion of provisions is maintained within the "Other provisions and other non-current liabilities" caption.

11. GREENHOUSE GAS EMISSIONS ALLOWANCES (EUAS) AND CERTIFIED EMISSION REDUCTIONS (CERS)

In the absence of an IFRS standard or interpretation relating to accounting for CO_2 emissions allowances, the following treatment has been adopted:

- allowances allocated without payment of consideration are recognized for a nil value; and
- transactions carried out in the market are recognized at the transaction amount.

At this point, greenhouse gas emissions allowances (EUAs) allocated are adequate to cover the operational needs of the Group's European entities and a deficit is not currently forecast. The Group does not have any trading activity in respect of CO_2 emissions allowances. However, in the normal course of its operations, the Group may carry out cash or forward sales of its surpluses. These sales do not enter into the scope of application of IAS 39 because of the "own use" exception.

The CERs produced by the Group in the context of projects to reduce its greenhouse gas emissions are recognized in inventories, and sales are recorded at their net-of-tax value on delivery of the CERs.

12. INCOME STATEMENT ITEMS

12.1 Sales

Sales consist of sales of chemicals produced or marketed by the Group. They are measured at the fair value of the consideration received or receivable, net of returns, trade discounts and volume rebates. Sales are recognized when control of the goods is transferred to the customer. The transfer of control is determined mainly on the basis of the terms and conditions of the sales contracts.

12.2 Operating expenses

Operating expenses correspond to the full cost of sales excluding research and development expenses and selling and administrative expenses which are reported on specific lines.

12.3 Research and development expenses

Research and development expenses include salaries, purchases, external services and amortization, and are recognized as incurred. Grants received are recognized as a deduction from research expenses.

The Group recognizes the research tax credit as a deduction from operating expenses.

12.4 Other income and expenses

Other income and expenses concern a limited number of well-identified non-recurring items of income and expense of a particularly material nature that the Group presents separately in its income statement in order to facilitate understanding of its recurring operational performance. These items of income and expense notably include:

- impairment losses in respect of property, plant and equipment and intangible assets;
- gains or losses on sale of assets, acquisition costs, negative goodwill on acquisitions on favourable terms and the valuation difference on inventories between their fair value at the acquisition date and their production cost;
- large restructuring and environmental expenses which would hamper the interpretation of recurring operating income (including substantial modifications to employee benefit plans and the effect of onerous contracts); and
- expenses related to litigation and claims or major damages, whose nature is not directly related to ordinary operations.

12.5 Recurring operating income

The recurring operating income is calculated as all income and expenses not relating to the financial result, equity affiliates or income taxes.

12.6 Earnings per share

In accordance with IAS 33, the earnings per share and diluted earnings per share are calculated based on net income (Group share) less the net-of-tax interest paid to bearers of subordinated perpetual notes (hybrid bonds).

After this adjustment, the net income (Group share) is divided by the weighted average number of ordinary shares in circulation since the start of the year to calculate the earnings per share.

For the diluted earnings per share, the effect of dilution is thus calculated taking account of stock options and grants of free shares to be issued.

13. INCOME TAXES

13.1 Current taxes

Current taxes are the amount of income taxes that the Group expects to pay in respect of taxable profits of consolidated companies in the period. They also include adjustments to current taxes in respect of prior periods.

The French tax consolidation regime enables certain French companies in the Group to offset their taxable results in determining the tax charge for the entire French tax group. The overall tax charge is payable by Arkema, as the parent company of the tax group. Tax consolidation regimes also exist in countries outside France.

The French Finance Act for 2010 introduced the local tax named CET *(Contribution Economique Territoriale)*. One of its components is the contribution based on companies' value added (*Cotisation sur la Valeur Ajoutée des Entreprises* – CVAE). After analyzing the methods for determining this contribution in the light of the positions of the IFRS IC and France's Accounting Standards Authority ANC *(Autorité des normes comptables)* in late 2009, the Group considered that in this specific case, the contribution meets the requirements to be treated as a current tax under IAS 12. The CVAE has therefore been classified under "Income taxes" since 1 January 2010.

13.2 Deferred taxes

The Group uses the liability method whereby deferred taxes are recognized based upon the temporary differences between the financial statement and tax basis of assets and liabilities, as well as on tax loss carry forwards and other tax credits, in accordance with IAS 12 "Income taxes".

Deferred tax assets and liabilities are valued at the tax rates that are expected to apply in the year in which the asset will be realized or the liability settled, on the basis of tax rates (and tax legislation) that have been enacted or virtually enacted at the balance sheet date. The effect of any changes in tax rates is recognized in income for the period, unless it relates to items that were previously debited or credited through equity. Deferred tax assets and liabilities are not discounted.

Deferred tax assets are recognized to the extent that their recovery is probable. In order to assess the likelihood of recovery of such assets, account is notably taken of the profitability outlook at the end of each period, determined by the Group and historical taxable profits or losses.

A deferred tax liability is recognized for all taxable temporary differences related to investments in subsidiaries, associates and joint ventures, unless:

- the Group controls the timing of the reversal of the temporary difference; and
- it is probable that this difference will not reverse in the foreseeable future.

Deferred tax assets and liabilities are offset if a legally enforceable right to offset current tax assets and liabilities exists and if they relate to income taxes levied by the same tax authority.

14. CASH FLOW STATEMENT

Cash flows in foreign currencies are translated into euros using the average exchange rates of each period. Cash flow statements exclude foreign exchange differences arising from the translation into euros of assets and liabilities recognized in balance sheets denominated in foreign currencies at the end of the period (except for cash and cash equivalents). In consequence, cash flows cannot be recalculated on the basis of the amounts shown in the balance sheet.

15. SHARE-BASED PAYMENTS

In application of IFRS 2 "Share-based payments", the stock options and free shares granted to management and certain Group employees are measured at their fair value at the date of grant, which generally corresponds to the date of the Board of Directors' meeting that granted the stock options and free shares.

The fair value of the options is calculated using the Black & Scholes model, adjusted, in the case of the last plans granted in 2011, for an illiquidity cost due to the non-transferability of instruments; the expense is recognized in personnel expenses on a straight-line basis over the period from the date of grant to the date from which the options can be exercised.

The fair value of rights under free share grants corresponds to the opening market price of the shares on the day of the Board of Directors' meeting that decides on the grant, adjusted for dividends not received during the vesting period and an illiquidity cost related to the period of non-transferability. The expense recognized also reflects the probability that the presence condition will be fulfilled. This expense is included in personnel expenses on a straight-line basis over the vesting period of the rights.

c. Notes to the consolidated financial statement

NOTE 1 | Alternative performance indicators

To monitor and analyse the financial performance of the Group and its activities, the Group management uses alternative performance indicators. These are financial indicators that are not defined by the IFRS. This note presents a reconciliation of these indicators and the aggregates from the consolidated financial statements under IFRS.

Note C.2 "Information by business division" partly refers to these alternative performance indicators.

1.1 RECURRING OPERATING INCOME (REBIT) AND EBITDA

(In millions of euros)	Notes	2018	2017
OPERATING INCOME		**928**	**845**
- Depreciation and amortization related to the revaluation of tangible and intangible assets as part of the allocation of the purchase price of businesses		(35)	(45)
- Other income and expenses	(C4)	(63)	(52)
RECURRING OPERATING INCOME (REBIT)		**1,026**	**942**
- Recurring depreciation and amortization		(448)	(449)
EBITDA		**1,474**	**1,391**

Details of depreciation and amortization of tangible and intangible assets *(In millions of euros)*	Notes	2018	2017
Depreciation and amortization of tangible and intangible assets	(C9.2 & C10)	**(508)**	**(501)**
Of which: Recurring depreciation and amortization of tangible and intangible assets		(448)	(449)
Of which: Depreciation and amortization related to the revaluation of tangible and intangible assets as part of the allocation of the purchase price of businesses		(35)	(45)
Of which: Impairment included in other income and expenses	(C4)	(25)	(7)

1.2 ADJUSTED NET INCOME AND ADJUSTED EARNINGS PER SHARE

(In millions of euros)	Notes	2018	2017
NET INCOME – GROUP SHARE		**707**	**576**
- Depreciation and amortization related to the revaluation of tangible and intangible assets as part of the allocation of the purchase price of businesses		(35)	(45)
- Other income and expenses	(C4)	(63)	(52)
- Other income and expenses attributable to non-controlling interests		-	-
- Taxes on depreciation and amortization related to the revaluation of tangible and intangible assets as part of the allocation of the purchase price of businesses		8	12

(In millions of euros)	Notes	2018	2017
- Taxes on other income and expenses		10	14
- One-time tax-effects*		62	55
ADJUSTED NET INCOME		**725**	**592**
Weighted average number of ordinary shares		76,240,868	75,682,844
Weighted average number of potential ordinary shares	(C8)	76,377,502	75,895,729
ADJUSTED EARNINGS PER SHARE *(€)*		**9.51**	**7.82**
DILUTED ADJUSTED EARNINGS PER SHARE *(€)*		**9.49**	**7.80**

* *One-time tax-effects for 2018 correspond to partial recognition of tax losses and deferred taxes under the French tax consolidation regime (€59 million). One-time tax-effects for 2017 correspond to the impacts on deferred taxes of the decrease in the corporate income tax rates in the United States and France, and the cancellation and reimbursement of the 3% contribution which was payable in France on cash dividends.*

1.3 RECURRING CAPITAL EXPENDITURE

(In millions of euros)	2018	2017
INTANGIBLE ASSETS AND PROPERTY, PLANT, AND EQUIPMENT ADDITIONS	**591**	**459**
- Exceptional capital expenditure	61	10
- Investments relating to portfolio management operations	4	18
- Capital expenditure with no impact on net debt	26	11
RECURRING CAPITAL EXPENDITURE	**500**	**420**

Exceptional capital expenditure correspond to a very limited number of capital expenditure that the Group presents separately in its financial reporting due to their unusual size or nature (major development projects, accidents or damages, exceptional restructuring operations). In 2017 and 2018, they mainly concern capital expenditure in thiochemicals in Malaysia and specialty polyamides in Asia.

Investments relating to portfolio management operations reflect the impact of acquisition operations. In 2017 they concerned the acquisition of the assets of CMP Specialty Products.

Capital expenditure with no impact on net debt correspond to capital expenditure financed by non-Group entities, or reclassifications of assets. In 2017 and 2018 they mainly correspond to capital expenditure for a study concerning a project for which the partner financing is booked in the change in fixed asset payables. The 2017 figures have been restated.

1.4 FREE CASH FLOW AND EBITDA TO CASH CONVERSION RATE

(In millions of euros)	2018	2017
Cash flow from operating activities	1,029	1,008
+ Cash flow from net investments	(743)	(448)
NET CASH FLOW	**286**	**560**
- Net cash flow from portfolio management operations	(213)	(5)
FREE CASH FLOW	**499**	**565**

The net cash flow from portfolio management operations corresponds to the impact of acquisition and divestment operations described in note A1, “Highlights”.

The EBITDA to cash conversion rate corresponds to the free cash flow excluding exceptional capital expenditure divided by EBITDA.

(In millions of euros)	2018	2017
Free cash flow	499	565
- Exceptional capital expenditure	(61)	(10)
FREE CASH FLOW EXCLUDING EXCEPTIONAL CAPITAL EXPENDITURE	**560**	**575**
EBITDA	1,474	1,391
EBITDA TO CASH CONVERSION RATE	**38.0%**	**41.3%**

1.5 WORKING CAPITAL

(In millions of euros)	Notes	2018	2017
Inventories	(C14)	1,136	1,145
+ Accounts receivable	(C15)	1,247	1,115
+ Other receivables including income taxes	(C15 & C6)	253	251
+ Other current financial assets	(C23)	7	17
- Accounts payable	(C24)	1,037	(965)
- Other liabilities including income taxes	(C24 & C6)	421	(459)
- Other current financial liabilities	(C23)	7	10
WORKING CAPITAL		**1,178**	**1,094**

1.6 CAPITAL EMPLOYED

(In millions of euros)	Notes	2018	2017
Goodwill, net	(C9)	1,618	1,525
+ Intangible assets other than goodwill, and property, plant and equipment, net	(C9 & C10)	3,886	3,645
+ Investments in equity affiliates	(C11)	38	30
+ Other investments and other non-current assets	(C12 & C13)	276	260
+ Working capital		1,178	1,094
CAPITAL EMPLOYED		**6,996**	**6,554**

1.7 NET DEBT

(In millions of euros)	Notes	2018	2017
Non-current debt	(C21)	2,246	2,250
+ Current debt	(C21)	201	244
- Cash and cash equivalents	(C16)	1,441	1,438
NET DEBT		**1,006**	**1,056**

1.8 RETURN ON AVERAGE CAPITAL EMPLOYED (ROACE)

The return on average capital employed (ROACE) corresponds to the recurring operating income (REBIT) divided by the average capital employed at the end of the current and prior year.

(In millions of euros)	2018	2017
Recurring operating income (REBIT)	1,026	942
Average capital employed*	6,775	6,691
ROACE	**15.1%**	**14.1%**

* *Average capital employed of the current and the prior year.*

NOTE 2 Information by business division

As required by IFRS 8, "Operating Segments", segment information for the Group is presented in accordance with the business divisions identified in the internal reports that are regularly reviewed by general management in order to allocate resources and assess financial performance.

The Group has three business divisions: High Performance Materials, Industrial Specialties and Coating Solutions. Three members of the Executive Committee supervise these divisions; they report directly to the Chairman and CEO, the Group's chief operating decision-maker as defined by IFRS 8, and are in regular contact with him for the purpose of discussing their sector's operating activity, financial results, forecasts and plans.

The content of the business divisions is as follows:

- High Performance Materials includes the following Business Lines [(1)]:
  - Bostik,
  - Technical Polymers, comprising specialty polyamides and PVDF,
  - Performance Additives, comprising photocure resins (Sartomer), organic peroxides and the adsorption activity.

  High Performance Materials provide innovative solutions with high value added, used in varied sectors such as transport, oil extraction, renewable energies (photovoltaics, lithium-ion batteries), consumer goods (beauty products, sports equipment, packaging, etc), electronics, construction, coatings and water treatment;
- Industrial Specialties groups the following Business Lines:
  - Thiochemicals,
  - Fluorogases,
  - PMMA,
  - Hydrogen Peroxides.

  These integrated industrial niche markets on which the Arkema Group is among the world leaders concern products used in several industrial sectors such as production of cold (refrigeration and air conditioning), petrochemicals, refining, paper pulp, animal nutrition, electronics and the automotive industry;
- Coating Solutions comprises the following Business Lines:
  - Acrylics,
  - Coating Resins and Additives, comprising the coatings resins and Coatex rheological additives activities.

  This division proposes solutions for decorative paints, industrial coatings, adhesives and high-growth acrylic applications (superabsorbents for disposable nappies, water treatment, oil and gas extraction).

Functional and financial activities which cannot be directly allocated to operational activities (notably certain research costs and central costs) are brought together in a Corporate division.

Operating income and assets are allocated between business divisions prior to inter-division adjustments. Sales between divisions take place at market prices.

(1) Business Lines are activities or groups of activities.

2018 *(In millions of euros)*	High Performance Materials	Industrial Specialties	Coating Solutions	Corporate	Total
Non-Group sales	**3,970**	**2,699**	**2,120**	**27**	**8,816**
Inter-division sales	10	159	75	-	
Total sales	**3,980**	**2,858**	**2,195**	**27**	
EBITDA*	**640**	**675**	**243**	**(84)**	**1,474**
Recurring depreciation and amortization*	(159)	(178)	(103)	(8)	(448)
Recurring operating income (REBIT)*	**481**	**497**	**140**	**(92)**	**1,026**
Depreciation and amortization related to the revaluation of tangible and intangible assets as part of the allocation of the purchase price of businesses	(35)	-	-	-	(35)
Other income and expenses	(41)	(24)	(4)	6	(63)
Operating income	**405**	**473**	**136**	**(86)**	**928**
Equity in income of affiliates	1	1	-	-	2
Intangible assets and property, plant, and equipment additions	199	238	117	37	591
*Of which: recurring capital expenditure**	*168*	*178*	*117*	*37*	*500*
Employees at year end	**10,936**	**5,786**	**3,140**		**19,862**
Goodwill, net	1,224	90	297	7	1,618
Intangible assets other than goodwill, and property, plant and equipment, net	1,985	1,152	676	73	3,886
Investments in equity affiliates	16	22	-	-	38
Other investments and other non-current assets	72	62	23	119	276
Working capital*	667	232	277	2	1,178
Capital employed*	**3,964**	**1,558**	**1,273**	**201**	**6,996**
Provisions and other non-current liabilities	(310)	(297)	(73)	(223)	(903)

* *See C1 "Alternative performance indicators"*

2017 *(In millions of euros)*	High Performance Materials	Industrial Specialties	Coating Solutions	Corporate	Total
Non-Group sales	**3,830**	**2,545**	**1,924**	**27**	**8,326**
Inter-division sales	7	141	72	-	
Total sales	**3,837**	**2,686**	**1,996**	**27**	
EBITDA*	**632**	**585**	**244**	**(70)**	**1,391**
Recurring depreciation and amortization*	(158)	(174)	(109)	(8)	(449)
Recurring operating income (REBIT)*	**474**	**411**	**135**	**(78)**	**942**
Depreciation and amortization related to the revaluation of tangible and intangible assets as part of the allocation of the purchase price of businesses	(45)	-	-	-	(45)
Other income and expenses	(19)	(9)	(8)	(16)	(52)
Operating income	**410**	**402**	**127**	**(94)**	**845**
Equity in income of affiliates	1	-	-	-	1
Intangible assets and property, plant, and equipment additions	186	165	88	20	459
*Of which: recurring capital expenditure**	*168*	*144*	*88*	*20*	*420*
Employees at year end	**10,808**	**5,674**	**3,153**		**19,635**
Goodwill, net	1,134	89	295	7	1,525
Intangible assets other than goodwill, and property, plant and equipment, net	1,863	1,072	660	50	3,645
Investments in equity affiliates	9	21	-	-	30
Other investments and other non-current assets	69	55	24	112	260
Working capital*	630	270	236	(42)	1,094
Capital employed*	**3,705**	**1,507**	**1,215**	**127**	**6,554**
Provisions and other non-current liabilities	(314)	(284)	(79)	(226)	(903)

* *See C1 "Alternative performance indicators"*

Breakdown of non-Group sales by Business Line:

	2018	2017
High Performance Materials	**45%**	**46%**
Technical Polymers	10%	10%
Performance Additives	12%	12%
Bostik	23%	24%
Industrial Specialties	**31%**	**31%**
Thiochemicals	8%	8%
Fluorogases	9%	9%
PMMA	10%	10%
Hydrogen Peroxides	4%	4%
Coating Solutions	**24%**	**23%**
Acrylics	11%	10%
Coating Resins and Additives	13%	13%

NOTE 3 Information by geographical area

Non-Group sales are presented on the basis of the geographical location of customers. Capital employed, Intangible assets and property, plant, and equipment additions, and Employees at year end are presented on the basis of the location of the assets.

2018 *(In millions of euros)*	France	Rest of Europe	NAFTA*	Asia	Rest of the world	Total
Non-Group sales	732	2,612	2,727	2,342	403	8,816
Capital employed	2,598	1,034	1,843	1,476	45	6,996
Intangible assets and property, plant, and equipment additions	202	45	215	127	2	591
Employees at year end	7,193	3,632	3,880	4,581	576	19,862

2017 *(in millions of euros)*	France	Rest of Europe	NAFTA*	Asia	Rest of the world	Total
Non-Group sales	662	2,498	2,649	2,149	368	8,326
Capital employed	2,647	986	1,509	1,357	55	6,554
Intangible assets and property, plant, and equipment additions	164	38	178	76	3	459
Employees at year end	7,144	3,627	3,742	4,539	583	19,635

* *NAFTA: USA, Canada, Mexico.*

NOTE 4 Other income and expenses

	2018			2017		
(In millions of euros)	Expenses	Income	Net	Expenses	Income	Net
Restructuring and environment	(27)	1	(26)	(25)	10	(15)
Goodwill impairment	-	-	-	-	-	-
Asset impairment (other than goodwill)	(23)	-	(23)	(4)	-	(4)
Litigation and claims	(24)	7	(17)	(24)	-	(24)
Gains (losses) on sales and purchases of assets	(5)	4	(1)	(12)	3	(9)
Other	-	4	4	-	-	-
TOTAL OTHER INCOME AND EXPENSES	**(79)**	**16**	**(63)**	**(65)**	**13**	**(52)**

In 2018, restructuring and environment expenses mainly include restructuring costs at Bostik. Litigation and claims costs correspond to the termination of a contract with a supplier, and costs resulting from the consequences of Hurricane Harvey in the United States in 2017. The income corresponds to a partial indemnity for the initial investments on the Crosby site after Hurricane Harvey. Exceptional impairment principally concerns industrial assets in the United States.

In 2017, restructuring and environment expenses include provisions for restructuring, particularly in the Coating Solutions and Bostik segments, and an additional provision for restoration of certain sites. Income mainly concerns the adjustment, following the reduction in the corporate income tax rate in the United States, of the long-term receivable related to the guarantee mechanism provided by Total for former industrial sites in the United States as part of the Spin-Off (see note C.13 "Other non-current assets" and C.29.2 "Commitments received").

Litigation costs correspond to the consequences of Hurricane Harvey in the United States, particularly the total insurance deductible which amounts to €18 million. Gains and losses on sales and purchases of assets principally comprise the impact of revaluation of inventories in connection with the acquisition of Den Braven.

The total impairment included in other income and expenses amounts to €(25) million at 31 December 2018 compared to €(7) million at 31 December 2017.

NOTE 5 Financial result

Financial result includes the cost of debt adjusted for capitalized financial expenses, and as regards provisions for pensions and employee benefits, the interest cost, the expected return on plan assets and the actuarial gains and losses related to changes in the discount rate on other long-term benefits. It also includes the portion of foreign exchange gains and losses corresponding to the interest income/expense reflected by the difference between the spot exchange rate and the forward exchange rate, and the foreign exchange gain/loss on unhedged financing.

(In millions of euros)	2018	2017
Cost of debt	(62)	(77)
Financial income/expenses on provisions for pensions and employee benefits	(11)	(11)
Spot/forward exchange rate difference and foreign exchange gain/loss on unhedged financing	(30)	(17)
Capitalized interest	2	2
Other	0	-
FINANCIAL RESULT	**(101)**	**(103)**

NOTE 6 Income taxes

6.1 INCOME TAX EXPENSE

The income tax expense is broken down as follows:

(In millions of euros)	2018	2017
Current income taxes	(180)	(207)
Deferred income taxes	66	45
TOTAL INCOME TAXES	**(114)**	**(162)**

The income tax expense amounts to €114 million for 2018 including €17 million for the CVAE, compared with €162 million for 2017 including €15 million for the CVAE (see B.13 "Income taxes"). Deferred taxes include income of €59 million generated by recognition of deferred tax assets in France in 2018, due to the country's improved profitability prospects.

In 2017, current income taxes include income of €14 million due to cancellation of the 3% contribution payable, in France, on dividends paid in cash for the period 2013 to 2016. Deferred income taxes included income resulting from the announcement of a reduction in corporate income tax rates in the United States from 2018, and a gradual reduction in France from 2019, amounting to €36 million and €5 million respectively.

6.2 ANALYSIS BY SOURCE OF NET DEFERRED TAX ASSETS (LIABILITIES)

The analysis by source of the net deferred tax assets (liabilities) is as follows, before offset of assets and liabilities at fiscal entity level:

(In millions of euros)	31/12/2017	Changes in scope/ Reclassifications	Changes recognized in shareholders' equity	Changes recognized in the income statement	Translation adjustments	31/12/2018
Tax loss and tax credit carryforwards	7	69*	0	36	1	113
Provisions for pensions and similar benefits	101	0	(2)	(7)	3	95
Other temporarily non-deductible provisions	188	0	1	0	(2)	187
Deferred tax assets	**296**	**69**	**(1)**	**29**	**2**	**395**
Valuation allowance on deferred tax assets	**(28)**	**(69)***	**1**	**30**	**0**	**(66)**
Excess tax over book depreciation	105	0	1	2	3	111
Other temporary tax deductions	284	1	0	(9)	1	277
Deferred tax liabilities	**389**	**1**	**1**	**(7)**	**4**	**388**
NET DEFERRED TAX ASSETS (LIABILITIES)	**(121)**	**(1)**	**(1)**	**66**	**(2)**	**(59)**

* *The analysis by source was adjusted in 2018 to align the presentation more closely with the nature of the deferred tax assets recognized.*

After offsetting assets and liabilities at fiscal entity level, deferred taxes are presented as follows in the balance sheet:

(In millions of euros)	31/12/2018	31/12/2017
Deferred tax assets	209	150
Deferred tax liabilities	268	271
NET DEFERRED TAX ASSETS (LIABILITIES)	**(59)**	**(121)**

As the Group is able to control the timing of the reversal of temporary differences related to investments in subsidiaries and joint ventures, it is not necessary to recognize deferred taxes in respect of these differences.

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6.3 RECONCILIATION BETWEEN INCOME TAX EXPENSE AND PRE-TAX INCOME

(In millions of euros)	2018	2017
Net income	715	581
Income taxes	(114)	(162)
Pre-tax income	829	743
French corporate income tax rate	34.43%	34.43%
Theoretical tax expense	(285)	(256)
Difference between French and foreign income tax rates	54	12
Tax effect of equity in income of affiliates	0	0
Permanent differences	17	105
Change in valuation allowance against deferred tax assets ceiling	12	(17)
Deferred tax assets not recognized (losses)	88	(6)
INCOME TAX EXPENSE	**(114)**	**(162)**

The French corporate income tax rate includes the standard tax rate (33.33%) and the additional social contribution. The overall income tax rate therefore stands at 34.43%.

The net impact of the CVAE is included in permanent differences.

6.4 EXPIRY OF TAX LOSS CARRY FORWARDS AND TAX CREDITS

The Group's unrecognized tax loss carryforwards and tax credits can be used up to their year of expiry, indicated in the table below:

	31/12/2018		31/12/2017	
(In millions of euros)	Base	Income taxes	Base	Income taxes
2018	-	-	18	4
2019	35	9	39	10
2020	36	9	37	9
2021	47	12	48	12
2022	33	8	40	10
2023 and beyond	27	6	-	-
Tax losses that can be carried forward indefinitely*	1,247	338	1,685	450
TOTAL	**1,425**	**382**	**1,867**	**495**

* *Essentially in France.*

The Group's unrecognized tax loss carryforwards and tax credits take into account the changes in the tax rates.

NOTE 7 | Business combinations

7.1 XL BRANDS

On 2 January 2018 Arkema finalized the acquisition of XL Brands in the United States, for an enterprise value of US$ 205 million and a final price of €164 million.

In compliance with IFRS 3 (revised), the Group used the acquisition method for the accounting treatment of this operation.

The amount recorded in the financial statements at 31 December 2018 for the identifiable assets acquired and liabilities assumed at the acquisition date breaks down as follows:

(In millions of euros)	**Fair value acquired from XL Brands**
Intangible assets	98
Property, plant and equipment	6
Total non-current assets	**104**
Inventories	4
Total current assets	**4**
Total assets	**108**
Fair value of net assets	**108**
Goodwill	**56**

Intangible assets stated at fair value mainly consist of the XL Brands® trademark, technologies, customer relations, and a non-compete agreement, the three latter assets being amortized over periods of 12.5 years, 16 years and 7 years respectively. The revalued inventories were consumed during the first half of 2018.

The goodwill of €56 million is final. It principally comprises the synergies and the step-up in business activity expected from the technological and commercial complementarities between Bostik and XL Brands.

The goodwill and the trademark are amortizable for tax purposes.

7.2 OTHER BUSINESS COMBINATIONS

Other business combinations in 2018 concern the acquisitions of:

- the industrial adhesives of Nitta-Gelatin Inc. in Japan, which generate annual sales of approximately €30 million;
- Afinitica, a company specializing in instant adhesives, also known as cyanoacrylates.

In compliance with IFRS 3 (revised), the Group used the acquisition method for the accounting treatment of this operation.

The amount recorded in the financial statements at 31 December 2018 for the identifiable assets acquired and liabilities assumed at the acquisition date is €11 million.

Intangible assets stated at fair value principally comprise technologies, which are amortized over periods of 12.5 years to 20 years.

The total goodwill of €19 million resulting from allocation of the purchase price is final. It principally comprises synergies and the step-up in business activity expected from the technological and commercial complementarities.

€8 million of this goodwill is amortizable for tax purposes.

NOTE 8 Earnings per share

	2018	2017
Weighted average number of ordinary shares	76,240,868	75,682,844
Dilutive effect of stock options	38,003	114,080
Dilutive effect of free share grants	98,631	98,805
Weighted average number of potential ordinary shares	76,377,502	75,895,729

(In millions of euros)	2018	2017
Net income – Group share	707	576
Interest on subordinated perpetual notes, net of tax	(33)	(33)
Net income used in calculating earnings per share	674	543

	2018	2017
Earnings per share *(€)*	8.84	7.17
Diluted earnings per share *(€)*	8.82	7.15

NOTE 9 Intangible assets

9.1 GOODWILL

	31/12/2018			31/12/2017
(In millions of euros)	Gross book value	Accumulated amortization and impairment	Net book value	Net book value
Goodwill	2,152	(534)	1,618	1,525

The breakdown by segment, with allocation by Business Line and CGU, is as follows:

Goodwill by Business Line	*by CGU (in millions of euros)*	31/12/2018 Net book value	31/12/2017 Net book value
Bostik	*Bostik*	914	830
Performance Additives		171	167
of which	*Adsorption*	34	34
	Organic peroxides	24	23
	Sartomer	113	110
Technical Polymers	*Technical polymers (specialty polyamides and PVDF)*	139	137
High Performance Materials		**1,224**	**1,134**
PMMA	*PMMA and methacrylates (Altuglas)*	-	-
Thiochemicals	*Thiochemicals*	8	7
Fluorogases	*Fluorogases*	41	41
Hydrogen Peroxides	*Hydrogen Peroxides*	41	41
Industrial Specialties		**90**	**89**
Acrylics	*Acrylics*	170	169
Coating Resins and Additives		127	126
of which	*Rheological additives (Coatex)*	96	96
	Coating resins	31	30
Coating Solutions		**297**	**295**
Corporate		**7**	**7**
TOTAL		**1,618**	**1,525**

Changes in the net book value of goodwill are as follows:

(In millions of euros)	2018	2017
At 1 January	**1,525**	**1,703**
Acquisitions	-	-
Impairment	-	-
Disposals	-	-
Changes in scope	75	-
Translation adjustments	18	(58)
Reclassifications	0	(120)
At 31 December	**1,618**	**1,525**

The increase in goodwill in 2018 principally reflects the acquisitions in adhesives (see note C7 "Business combinations").

In 2017, the change in goodwill principally reflected the final allocation of goodwill on the acquisitions of Den Braven and CMP Specialty products.

9.2 OTHER INTANGIBLE ASSETS

(In millions of euros)	31/12/2018 Gross book value	31/12/2018 Accumulated amortization and impairment	31/12/2018 Net book value	31/12/2017 Net book value
Patents and technologies	430	(186)	244	238
Trademarks	549	(3)	546	528
Software and IT licences	322	(220)	102	109
Capitalized REACH costs	61	(27)	34	30
Other capitalized research expenses	22	(6)	16	8
Capitalized contracts	342	(261)	81	58
Asset rights	49	(17)	32	31
Customer relations	95	(19)	76	81
Other intangible assets	86	(26)	60	20
Intangible assets in progress	91	(23)	68	78
TOTAL	**2,047**	**(788)**	**1,259**	**1,181**

Trademarks essentially comprise the Bostik® and Den Braven® trademarks, which are part of the Bostik Business Line.

Changes in the net book value of intangible assets are as follows:

(In millions of euros)	2018	2017
At 1 January	**1,181**	**1,074**
Acquisitions	51	70
Amortization	(94)	(81)
Impairment	(3)	(5)
Disposals	0	0
Changes in scope	111	0
Translation adjustments	11	(32)
Reclassifications	2	155
At 31 December	**1,259**	**1,181**

NOTE 10 | PROPERTY, PLANT AND EQUIPMENT

	31/12/2018			31/12/2017
(In millions of euros)	Gross book value	Accumulated depreciation and impairment	Net book value	Net book value
Land and buildings	1,904	(1,249)	655	665
Complex industrial facilities	3,538	(2,879)	659	692
Other property, plant and equipment	3,088	(2,238)	850	790
Construction in progress	474	(11)	463	317
TOTAL	**9,004**	**(6,377)**	**2,627**	**2,464**

Other property, plant and equipment at 31 December 2018 mainly comprise machinery and tools with a gross value of €2,374 million (€2,262 million at 31 December 2017), and accumulated depreciation and provisions for impairment of €1,753 million (€1,680 million at 31 December 2017).

Changes in the net book value of property, plant and equipment are as follows:

(In millions of euros)	2018	2017
At 1 January	**2,464**	**2,652**
Acquisitions	540	389
Depreciation	(380)	(408)
Impairment	(31)	(7)
Disposals	(3)	(5)
Changes in scope	6	(10)
Translation adjustments	33	(153)
Other	-	-
Reclassifications	(2)	6
At 31 December	**2,627**	**2,464**

The figures above include the following amounts in respect of assets held under finance lease arrangements:

	31/12/2018			31/12/2017		
(In millions of euros)	Gross book value	Depreciation and impairment	Net book value	Gross book value	Depreciation and impairment	Net book value
Complex industrial facilities and buildings	32	(19)	13	30	(17)	13

They mainly correspond to leases of a hydrogen production unit located at Lacq and a production unit at Carling.

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NOTE 11 | Equity affiliates

The amounts of the Group's commitments to joint ventures and associates are non-significant.

11.1 ASSOCIATES

(In millions of euros)	2018 % ownership	2018 Equity value	2018 Equity in income (loss)	2018 Sales	2017 % ownership	2017 Equity value	2017 Equity in income (loss)	2017 Sales
Arkema Yoshitomi Ltd.	49%	4	0	15	49%	4	1	16
CJ Bio Malaysia Sdn. Bhd.	14%	19	(2)	235	14%	20	(1)	216
Ihsedu Agrochem Private Ltd.	25%	5	0	238	25%	5	0	221
TOTAL		**28**	**(2)**			**29**	**0**	

11.2 JOINT VENTURES

(In millions of euros)	2018 % ownership	2018 Equity value	2018 Equity in income (loss)	2018 Sales	2017 % ownership	2017 Equity value	2017 Equity in income (loss)	2017 Sales
Barrflex TU LLC	49%	6	0	1	-	-	-	-
Daikin Arkema Refrigerants Asia Ltd.	40%	2	2	38	40%	1	1	37
Daikin Arkema Refrigerants Trading Ltd.	40%	2	1	53	40%	0	0	48
TOTAL		**10**	**3**			**1**	**1**	

In September 2018 Arkema announced the formation with Barrday Inc., a major player in the composites market, of a joint venture named Barrflex TU to make and market high performance composite solutions for the oil and gas market.

NOTE 12 | Other investments

The main movements in 2017 and 2018 are as follows:

(In millions of euros)	2018	2017
At 1 January	**30**	**33**
Acquisitions	1	2
Disposals	(2)	0
(Increases)/ Reversals of impairment	4	0
Changes in scope	-	(5)
Translation adjustments	0	0
Other changes	0	-
At 31 December	**33**	**30**

NOTE 13 | Other non-current assets

	31/12/2018			31/12/2017		
(In millions of euros)	Gross value	Impairment	Net value	Gross value	Impairment	Net value
Pension assets	3	-	3	0	-	0
Loans and advances	226	(15)	211	218	(15)	203
Security deposits paid	29	0	29	27	-	27
TOTAL	**258**	**(15)**	**243**	**245**	**(15)**	**230**

Loans and advances include amounts receivable from the French tax authorities in respect of the research tax credit (CIR), and the tax credit for competitiveness and employment (CICE). Loans and advances also include €46 million of receivables on Total related to the remediation costs in respect of closed industrial sites in the United States (see note C19.3 "Other Provisions and other non-current liabilities/Provisions for environmental contingencies").

The CIR and CICE for 2014, amounting to €27 million, were reimbursed during the fourth quarter of 2018.

The CIR and CICE for 2015, amounting to €28 million, will be reimbursed during 2019.

NOTE 14 | Inventories

(In millions of euros)	31/12/2018	31/12/2017
INVENTORIES (COST)	**1,248**	**1,254**
Valuation allowances	(112)	(109)
INVENTORIES (NET)	**1,136**	**1,145**
Of which:		
Raw materials and supplies	*353*	*353*
Finished products	*783*	*792*

NOTE 15 | Accounts receivable, other receivables and prepaid expenses

At 31 December 2018, accounts receivable are stated net of a bad debt provision of €35 million (€34 million at 31 December 2017). Other receivables and prepaid expenses notably include receivables from governments in an amount of €119 million at 31 December 2018 (€135 million at 31 December 2017), including €92 million of VAT. Details of accounts receivable net of valuation allowances are presented in note C22.4 "Credit risk".

NOTE 16 | Cash and cash equivalents

(In millions of euros)	31/12/2018	31/12/2017
Short-term cash advances	12	11
Monetary mutual funds	796	672
Available cash	633	755
CASH AND CASH EQUIVALENTS	**1,441**	**1,438**

NOTE 17 | Shareholders' equity

At 31 December 2018, Arkema's share capital amounted to €766 million, divided into 76,581,492 shares with nominal value of €10.

17.1 CHANGES IN SHARE CAPITAL AND PAID-IN SURPLUS

On 26 April 2018, Arkema carried out a capital increase reserved for employees totalling €50 million, resulting from the subscription of 610,405 shares.

Following the exercise of 100,581 share subscription options, the Company undertook two capital increases in the total amount of €4 million.

	2018	2017
Number of shares at 1 January	**75,870,506**	**75,717,947**
Issuance of shares following the capital increase reserved for employees	610,405	-
Issuance of shares following the exercise of subscription options	100,581	152,559
Number of shares at 31 December	**76,581,492**	**75,870,506**

17.2 HYBRID BONDS

As part of the financing of the acquisition of Bostik, Arkema issued a perpetual hybrid bond (subordinated perpetual notes) in October 2014 in the total amount of €689 million net of an issuance premium of €7 million and €4 million arrangement costs. These bonds include a first call option on 29 October 2020 and carry an annual coupon of 4.75% until that date. The coupon will then be reset every 5 years. At each coupon date, the interest can be paid or carried over at the issuer's convenience. Coupons carried over generate late payment interest and become due in the event of certain contractually defined circumstances under the control of the issuer.

In compliance with IAS 32, when there is an unconditional right to avoid delivering cash or another financial asset in the form of repayment of principal or interest, an instrument is recognized in shareholders' equity. In application of this principle, the hybrid bonds are recorded in shareholders' equity in the Group's consolidated financial statements.

Arkema paid out a coupon of €33 million in 2018 (€33 million in 2017).

17.3 TREASURY SHARES

Arkema bought back 557,642 treasury shares in 2018. The Arkema Group definitively granted 11,865 free shares to its employees in May 2018 in application of plan 2014-1,3, then 16,667 shares in June 2018 in application of plan 2016-3, and 243,337 shares in November 2018 in application of plan 2014-2.

	2018	2017
Number of treasury shares at 1 January	33,225	65,823
Repurchases of treasury shares	557,642	180,000
Grants of treasury shares	(271,869)	(212,598)
Number of treasury shares at 31 December	318,998	33,225

17.4 DIVIDENDS

The combined shareholders' general meeting of 18 May 2018 approved the distribution of a €2.30 dividend per share in respect of the 2017 financial year, or a total amount of €176 million. This dividend was paid out on 29 May 2018.

17.5 NON-CONTROLLING INTERESTS

Non-controlling interests do not represent a significant share of the Group's consolidated financial statements.

17.6 TRANSLATION ADJUSTMENTS

The change in translation adjustments recognized in other recyclable comprehensive income mainly comprises the impacts of movements in the USD-EUR exchange rate.

NOTE 18 | Provisions for pensions and other employee benefits

(In millions of euros)	2018	2017
Pension obligations	325	321
Healthcare and similar coverage	74	75
Post-employment benefits	**399**	**396**
Long service awards	66	57
Other	5	7
Other long-term benefits	**71**	**64**
PROVISIONS FOR PENSIONS AND OTHER EMPLOYEE BENEFITS	**470**	**460**

(In millions of euros)	2018	2017
Provisions recognized in liabilities	470	460
Amount recognized in assets	(3)	0
NET LIABILITY (ASSET) AT END OF PERIOD	**467**	**460**

In accordance with the laws and practices of each country, the Group participates in employee benefit plans offering retirement, healthcare and similar coverage, and special termination benefits. These plans provide benefits based on various factors including length of service, salaries, and contributions made to the national bodies responsible for the payment of benefits.

These plans are either defined contribution plans or defined benefit plans. In certain cases they can be either partly or totally funded by investments in dedicated plan assets, mutual funds, general funds of insurance companies or other assets.

Post-employment benefits are detailed in the tables in 18.1, 18.2, and 18.3 below.

The main features of the principal defined benefit plans are as follows:

- in the United States, the largest defined benefit plan is the "Employee Pension Plan". This plan is now frozen and no new rights can be earned except in the case of a few employees. Under this plan, beneficiaries receive a lump sum or an annuity when they retire. The plan is pre-funded, and the assets funding it are subject to the minimum funding rules laid down in the federal Pension Protection Act. A complementary healthcare plan covering certain medical expenses or insurance premiums for retired employees and their dependants is still open to new members; this plan is not pre-funded;
- in France, the top hat pension plans are closed to new members. One of these plans is managed by an insurance company and pre-funded by plan assets. The other plan has been terminated insofar as it concerns the Chairman and CEO, following the resolution adopted at the Company's shareholders' general meeting held on 7 June 2016.The portion of the plan related to other beneficiaries was closed and transferred to external management in 2016.

  The retiree top-up healthcare plan is also closed and is not pre-funded. Other benefit plans (bonuses, long service awards and retirement gratuities) pay out lump sums; they are open to all employees and are partly pre-funded;
- in Germany, all defined benefit plans are closed to new members. Plan participants receive a monthly payment once they retire (the normal retirement age is set at 65). Only certain plans are pre-funded, involving non-significant amounts;
- in the Netherlands, the defined benefit plans for Arkema and Bostik were open until 31 December 2015 and were then replaced by defined contribution plans from 1 January 2016; rights vested at 31 December 2015 were transferred to external management;
- in the United Kingdom, no further rights can now be earned under any existing plan. The UK plans are pre-funded through a pension fund.

18.1 EXPENSE IN THE INCOME STATEMENT

The expense related to defined benefit plans is broken down as follows:

	2018			2017		
(In millions of euros)	**Total**	**Pension obligations**	**Healthcare and similar coverage**	**Total**	**Pension obligations**	**Healthcare and similar coverage**
Current service cost	17	15	2	17	15	2
Past service cost	0	0	0	(4)	-	(4)
Settlements	-	-	-	-	-	-
Interest expense	23	21	2	25	22	3
Expected return on plan assets	(13)	(13)	-	(14)	(14)	-
Other	-	-	-	-	-	-
(Income)/ expense	**27**	**23**	**4**	**24**	**23**	**1**

18.2 CHANGE IN NET PROVISIONS OVER THE PERIOD

(In millions of euros)	Pension obligations 2018	Pension obligations 2017	Healthcare and similar coverage 2018	Healthcare and similar coverage 2017	Total post-employment benefits 2018	Total post-employment benefits 2017
Net liability (asset) at beginning of year	**321**	**366**	**75**	**93**	**396**	**459**
(Income)/Expense for the year	23	23	4	1	27	24
Contributions made to plan assets	(22)	(19)	-	-	(22)	(19)
Net benefits paid by the employer	(12)	(9)	(3)	(4)	(15)	(13)
Changes in scope	1	-	0	-	1	0
Other	-	-	-	-	-	-
Translation adjustments	4	(16)	2	(6)	6	(22)
Actuarial gains and losses recognized in shareholders' equity	7	(24)	(4)	(9)	3	(33)
Net liability (asset) at end of year	**322**	**321**	**74**	**75**	**396**	**396**

18.3 VALUATION OF OBLIGATIONS AND PROVISIONS AT 31 DECEMBER

a) Present value of benefit obligations

(In millions of euros)	Pension obligations 2018	Pension obligations 2017	Healthcare and similar coverage 2018	Healthcare and similar coverage 2017
Present value of benefit obligations at beginning of year	**704**	**771**	**75**	**93**
Current service cost	15	15	2	2
Net interest expense	21	22	2	3
Past service cost (including curtailments)	0	-	0	(4)
Settlements	0	(1)	-	-
Plan participants' contributions	0	-	-	-
Benefits paid	(46)	(56)	(3)	(4)
Actuarial (gains) and losses	(21)	9	(4)	(9)
Changes in scope	1	-	-	-
Other	-	-	-	-
Translation adjustments	16	(56)	2	(6)
Present value of benefit obligations at end of year	**690**	**704**	**74**	**75**

b) Change in fair value of plan assets

Plan assets are mainly located in the United States, France and the United Kingdom.

(In millions of euros)	Pension obligations 2018	2017
Fair value of plan assets at beginning of year	**(383)**	**(405)**
Interest income	(13)	(14)
Settlements	0	1
Plan participants' contributions	0	-
Employer contributions	(22)	(19)
Benefits paid from plan assets	34	47
Actuarial (gains) and losses	28	(33)
Changes in scope	-	-
Other	-	-
Translation adjustments	(12)	40
Fair value of plan assets at end of year	**(368)**	**(383)**

c) Obligations in the balance sheet

	Pension obligations		Healthcare and similar coverage	
(In millions of euros)	2018	2017	2018	2017
Present value of unfunded obligations	110	195	74	75
Present value of funded obligations	580	509	-	-
Fair value of plan assets	(368)	(383)	-	-
(Surplus)/ Deficit of assets relative to benefit obligations	**322**	**321**	**74**	**75**
Asset ceiling	-	-	-	-
Net balance sheet provision	**322**	**321**	**74**	**75**
Provision recognized in liabilities	325	321	74	75
Amount recognized in assets	(3)	-	-	-

Changes in recent years in the obligation, the value of the plan assets and actuarial gains and losses are as follows:

(In millions of euros)	2018	2017	2016	2015
Obligations for pensions, healthcare and similar coverage	764	779	864	959
Plan assets	(368)	(383)	(405)	(448)
Net obligations	**396**	**396**	**459**	**511**
Actuarial (gains)/ losses on accumulated rights				
• experience adjustments	(6)	(22)	2	3
• effects of changes in financial assumptions	(27)	22	45	(84)
• effects of changes in demographic assumptions	7	0	(37)	0

d) Pre-tax amount recognized through equity (SORIE) during the valuation period

	Pension obligations		Healthcare and similar coverage	
(In millions of euros)	2018	2017	2018	2017
Actuarial (gains) and losses generated in the period (A)	7	(24)	(4)	(9)
Effect of the surplus cap and the asset ceiling (B)	-	-	-	-
Total amount recognized in equity (A+B)	**7**	**(24)**	**(4)**	**(9)**
Cumulative actuarial (gains) and losses recognized in equity	**147**	**140**	**(73)**	**(69)**

e) Composition of the investment portfolio

	Pension obligations							
	At 31 December 2018				At 31 December 2017			
	France	UK	Rest of Europe	USA	France	UK	Rest of Europe	USA
Shares	16%	31%	27%	41%	19%	30%	29%	45%
Bonds	11%	36%	32%	40%	18%	34%	27%	37%
Property	1%	-	8%	8%	2%	-	7%	8%
Monetary/Cash assets	-	1%	8%	5%	-	-	12%	3%
Investment funds	-	32%	5%	-	-	35%	4%	7%
Funds held by an insurance company	72%	-	10%	-	61%	1%	11%	-
Other	0%	-	10%	6%	-	-	10%	-

Pension assets are mainly invested in listed financial instruments.

f) Actuarial assumptions

The main assumptions for pension obligations and healthcare and similar coverage are as follows:

	2018				2017			
	France	UK	Rest of Europe	USA	France	UK	Rest of Europe	USA
Discount rate	1.95	2.70	1.90	4.20	1.95	2.60	1.90	3.70
Rate of increase in salaries	2.30-2.50	N/A	1.50-3.50	3.90	2.30-2.50	N/A	1.50-3.50	3.90

The discount rate is determined based on indexes covering bonds by issuers with an AA credit rating, for maturities consistent with the duration of the above obligations.

The rate of increase in healthcare costs has a negligible impact in the United States as a ceiling has been applied since mid-2006, and in Europe since 2008. The impact has been limited to the rate of inflation during the period over which rights vest.

A change of plus or minus 0.50 points in the discount rate has the following effects on the present value of accumulated benefit obligations at 31 December:

Pension obligations, healthcare and similar coverage *(In millions of euros)*	2018	
	Europe	USA
Increase of 0.50	(26)	(21)
Decrease of 0.50	29	22

A change of plus or minus 0.50 points in the rate of increase in salaries has the following effects on the present value of accumulated benefit obligations at 31 December:

Pension obligations, healthcare and similar coverage *(In millions of euros)*	2018	
	Europe	USA
Increase of 0.50	11	4
Decrease of 0.50	(10)	(2)

g) Provisions by geographical area

2018	France	Germany	Rest of Europe	USA	Rest of the world	Total
Pension obligations	106	83	19	105	9	322
Healthcare and similar coverage	30	-	-	44	0	74

2017	France	Germany	Rest of Europe	USA	Rest of the world	Total
Pension obligations	106	84	17	105	9	321
Healthcare and similar coverage	31	-	-	44	-	75

h) Cash flows

The contributions to be paid by the Group in 2019 for funded benefits are estimated at €6 million.

The benefits to be paid by the Group in 2019 in application of defined benefit plans are valued at €5 million for pension obligations, and €4 million for healthcare and similar coverage.

NOTE 19 | Other provisions and other non-current liabilities

19.1 OTHER NON-CURRENT LIABILITIES

Other non-current liabilities amount to €24 million at 31 December 2018 as against €34 million at 31 December 2017.

19.2 OTHER PROVISIONS

(In millions of euros)	Environmental contingencies	Restructuring	Other	Total
At 1 January 2018	**189**	**42**	**178**	**409**
Increases in provisions	12	10	60	82
Reversals from provisions on use	(15)	(15)	(29)	(59)
Reversals of unused provisions	(1)	(1)	(27)	(29)
Changes in scope	-	-	-	-
Translation adjustments	4	0	2	6
Other	-	0	0	0
At 31 December 2018	**189**	**36**	**184**	**409**
Of which less than one year	26	14	77	117
Of which more than one year	163	22	107	292

In addition, certain provisions are covered by non-current assets (receivables and deposits):

(In millions of euros)	Environmental contingencies	Restructuring	Other	Total
Total provisions at 31 December 2018	**189**	**36**	**184**	**409**
Portion of provisions covered by receivables or deposits	**46**	**-**	**16**	**62**
Deferred tax asset related to amounts covered by the Total indemnity	14	-	-	14
Provisions at 31 December 2018 net of non-current assets	**129**	**36**	**168**	**333**

(In millions of euros)	Environmental contingencies	Restructuring	Other	Total
At 1 January 2017	**194**	**47**	**178**	**419**
Increases in provisions	28	9	56	93
Reversals from provisions on use	(15)	(12)	(31)	(58)
Reversals of unused provisions	(8)	(1)	(16)	(25)
Changes in scope	-	-	-	-
Translation adjustments	(10)	(1)	(9)	(20)
Other	-	-	-	-
At 31 December 2017	**189**	**42**	**178**	**409**
Of which less than one year	20	21	65	106
Of which more than one year	169	21	113	303

In addition, certain provisions are covered by non-current assets (receivables and deposits):

(In millions of euros)	Environmental contingencies	Restructuring	Other	Total
Total provisions at 31 December 2017	**189**	**42**	**178**	**409**
Portion of provisions covered by receivables or deposits	**43**	**-**	**15**	**58**
Deferred tax asset related to amounts covered by the Total indemnity	14	-	0	14
Provisions at 31 December 2017 net of non-current assets	**132**	**42**	**163**	**337**

19.3 PROVISIONS FOR ENVIRONMENTAL CONTINGENCIES

Provisions for environmental contingencies are recognized to cover expenses related to soil and water table clean-up, mainly:

- in France for €90 million (€92 million at 31 December 2017);
- in the United States for €80 million (€77 million at 31 December 2017), of which €60 million in respect of former industrial sites covered 100% by the Total group indemnity (receivable recognized in "Other non-current assets" for an amount of €46 million and €14 million recognized in deferred tax assets).

19.4 RESTRUCTURING PROVISIONS

Restructuring provisions are mainly in respect of restructuring measures in France for €22 million (€28 million at 31 December 2017), in Europe outside France for €10 million (€10 million at 31 December 2017) and in the United States for €4 million (€4 million at 31 December 2017).

Increases in such provisions in the year principally correspond to the restructuring plans described in note C4 "Other income and expenses".

19.5 OTHER PROVISIONS

Other provisions amount to €184 million and mainly comprise:

- provisions for labour litigation for €61 million (€58 million at 31 December 2017);
- provisions for commercial litigation and warranties for €61 million (€53 million at 31 December 2017);
- provisions for tax litigation for €29 million (€35 million at 31 December 2017);
- provisions for other risks for €33 million (€33 million at 31 December 2017).

NOTE 20 | Liabilities and contingent liabilities

20.1 ENVIRONMENT

The Group's business activities are subject to constantly changing local, national and international regulations on the environment and industrial safety, which entail meeting increasingly complex and restrictive requirements. In this regard, these activities can involve a risk of the Group's liability being called upon, particularly in respect of clean-up of sites and industrial safety.

Taking account of the information available, agreements signed with Total, and the provisions for environmental contingencies recognized, the Group's general management considers that the environmental liabilities identified at this point are valued and recognized to the best of their knowledge in the financial statements. However if laws, regulations or government policy in respect of environmental matters were to change, the Group's obligations could change, which could lead to additional costs.

Clean-up of sites

The competent authorities have made, are making or may in the future make specific demands that the Group rehabilitate or control emissions at certain sites that it is currently operating, or that it operated or disposed of in the past, at neighbouring sites or at sites where the Group stored or disposed of waste.

20.1.1 Sites currently in operation

The Group has many sites of which a certain number are probably polluted in view of their age and the range of activities that are carried out on them, or that were carried out on them in the past. As regards these sites, certain situations have been identified and the Group has already carried out certain clean-up work, or otherwise developed action plans and recognized provisions in order to cover future clean-up work.

However, in the light of (i) the uncertainties over the technical means to be implemented, (ii) potential issues that are unknown, (iii) uncertainties over the actual time required for remediation compared with the estimated time (*e.g.* "pump and treat"), and (iv) potential changes in regulations, the possibility that the expenses the Group will incur will be higher than the amounts covered by provisions cannot be excluded. These potential excess costs relate mainly to the sites in Antwerp (Belgium), Calvert City (United States), Carling (France), Günzburg (Germany), Jarrie (France), Lannemezan (France), Leicester (United Kingdom), Lesgor (France), Loison (France), Mont (France), Pierre-Bénite (France), Porto Marghera (Italy), Ribecourt (France), Rion-des-Landes (France), Riverview (United States), Rotterdam (the Netherlands), Saint-Auban (France), and Vlissingen (Netherlands) and could adversely affect the Group's business, results and financial condition.

20.1.2 Closed industrial sites (former industrial sites)

Total directly or indirectly took over some closed industrial sites at the date of the Spin-Off of Arkema's Businesses on 10 May 2006.

Since the Spin-Off, the businesses exercised on the former sites of Dorlyl SNC (France), Pierrefitte (France), Bonn (Germany) and Wetteren (Belgium) have been closed and the land sold. The businesses exercised on the Ibos site (France) have been closed and the real estate assets are in the process of being sold. The businesses exercised on the sites of Bernouville (France), Chauny (France), Miranda (Spain), Pierrefitte Nestalas (France), and Zaramillo (Spain) have also been closed, without selling the land, and where relevant are covered by provisions for amounts that the Group considers adequate.

In addition, the Prefect of Haute Savoie issued an additional decision on 6 April 2018 cancelling and replacing the previous decision of 1 December 2017, ordering investigations on the Chedde site (France) where the Group had a perchlorate production business in the past.

20.1.3 Sites in operation that have been sold

Saint-Fons (Arkema France)

In the sale of the Group's vinyls activities to the Klesch Group in early July 2012, all industrial installations on the Saint-Fons site were transferred to Kem One, apart from the land, which is held under a long-term lease. The agreements for the sale stipulated that Arkema France remains liable for legacy pollution to the site.

The Prefect of the Rhône region issued decisions on 14 May 2007 and 19 and 27 June 2012, ordering Arkema France to carry out quality monitoring on underground water and propose a plan to manage the legacy pollution affecting the site (T112 and other pollutants).

A provision has been established in the consolidated financial statements in connection with this matter.

Parrapon mining concession (SCIA Parapon)

Under a prior commitment made by the Arkema Group to the French authorities in connection with the transfer of the Parrapon mining concession to Kem One SAS, which was authorized by a ministerial decision of 13 January 2016, the Group will bear the costs that may be payable by Kem One SAS, as concession operator, as a result of surveillance and safety measures for the 31 salt mines which were permanently closed down on 12 February 2014.

To meet the requirements of the authorities, Kem One sent a proposal to the DREAL in a letter dated 21 August 2017 setting out a programme of work to be done over the period 2017 to 2020 for some of these salt mines, and the costs of surveillance beyond 2020. A provision considered adequate by the Group has been established in the financial statements.

20.2 LITIGATION, CLAIMS AND PROCEEDINGS IN PROGRESS

20.2.1 Labour litigation

a) Occupational illness (France)

In the manufacture of its products, the Group uses and has used toxic or hazardous substances. Despite the safety and monitoring procedures that have been instituted at Group level and for each production site, Group employees may have been exposed to such substances and may develop specific pathologies as a result of such exposure.

In this respect, like most industrial companies, in the past, the Group has used a variety of insulating or heat-proofing materials containing asbestos in its production facilities. Consequently, certain employees may have been exposed to such materials before they were gradually eliminated and replaced with substitute products.

At its French sites, the Group anticipated the regulatory provisions applicable to asbestos (Decrees no. 96-97 and 96-98 of 7 February 1996 and Decree No. 96-1133 of 24 December 1996). The Group made an inventory of building materials within its premises that contained asbestos, notified employees of the results of these investigations and took the collective and individual protective measures required by the applicable laws. However, claims for occupational illness related to past asbestos exposure have been filed against the Group, mostly for periods before 1980. Given the latency period of asbestos-related pathologies, a large number of claims for occupational illness are likely to be filed in the years ahead.

The Group has recognized provisions to cover the risks of employer liability claims related to notified cases of occupational illness.

b) Prejudice related to asbestos (Arkema France)

In a ruling of 11 May 2010, the labour chamber of the French Supreme Court *(Cour de Cassation)* recognized the existence of a prejudice of anxiety, eligible for compensation, for employees who in the past worked on sites included in the list of establishments whose workers were eligible for the early retirement system for asbestos workers.

No compensation claims against Arkema France for the prejudice of anxiety are still in process before the employee claims courts.

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However, it is possible that current or former employees of Arkema France who worked on sites that are added by ministerial decision to the official list of eligible sites could in future bring action before an employee claims court to claim compensation for the prejudice of anxiety.

20.2.2 Tax litigations

Arkema Quimica Ltda

Following a declaration as to the unconstitutional nature of certain taxes, Arkema's Brazilian subsidiary Arkema Quimica Ltda offset certain tax assets and liabilities commencing in 2000. The Brazilian government contests the justification for this offset and in 2009 claimed repayment of 19.5 million reais (around €6 million). In mid-2017 Arkema Quimica Ltda reassessed its risk and decided to opt into an amnesty programme that reduced the amount payable to 6 million reais, to be paid in instalments.

Arkema Srl

In 2013 the Lombardy Regional Tax office (Italy) conducted a tax inspection of Arkema Srl for the 2008, 2009 and 2010 financial years, subsequently extended to 2011, 2012 and 2013, after which among other observations, it contested the purchase prices of products for resale and the level of commission paid to the Company in intragroup transactions, and applied a withholding tax on intragroup financing. The tax reassessments notified for 2008, 2009, 2010, 2011, 2012 and 2013 amount to €12 million including interest and penalties. Arkema Srl is contesting all of these reassessments, and has won every case for which a judgement has been issued.

20.2.3 Other litigation

TGAP (Arkema France)

Arkema and Total signed a memorandum of understanding on 7 March 2017 that put an end to their dispute over payment of the French general tax on polluting activities (*taxe générale sur les activités polluantes*, or TGAP).

Harvey (Arkema Inc.)

As a result of Hurricane Harvey, Arkema's Crosby, Texas plant experienced unprecedented flooding leading to a loss of power, the loss of back up refrigeration, the decomposition of certain organic peroxides products that require refrigeration and, ultimately, a series of fires at the plant. Floodwaters also caused wastewater releases. Since September 2017, thirteen civil lawsuits have been filed against Arkema Inc. The Company is currently a named defendant in one of those such lawsuits. At this time, the Company has not been formally served and cannot estimate any potential losses associated with this lawsuit; if formally served, the Company will vigorously defend against such claims. A number of U.S., Texas, and local regulatory authorities are reviewing the incident at the Crosby plant, including Arkema Inc.'s compliance with environmental regulatory requirements, and the planning and actions taken to ensure the safety of the site, the surrounding community and environment.

On 24 May 2018, the U.S. Chemical Safety and Hazard Investigation Board issued their final investigation report on the incident. On 3 August 2018, a Grand Jury in Harris County returned indictments against Arkema Inc., its CEO and its former plant manager formally charging each with the crime or reckless endangerment. Each will vigorously defend against such claims.

Asbestos risk (Arkema Inc.)

In the United States, Arkema Inc. is involved in a substantial number of asbestos-related proceedings in various State courts. No notable developments have arisen in the proceedings concerning claims by third parties (other than employees) relating to (i) alleged exposure to asbestos on the Group's sites, or (ii) exposure to products containing asbestos and sold by former subsidiaries of the Group in the United States and elsewhere. Most proceedings by employees against Arkema Inc. concerning alleged exposure to asbestos in the United States are covered by the employee insurance policy in each State. However, in 2015 Arkema settled two disputes concerning former employees' alleged exposure to asbestos before State courts. When claims are not covered by insurance policies, provisions have been made for such claims in an amount which the Group considers sufficient. However, due to the continuing uncertainties as to the outcome of these proceedings, the Group is not, as at the date of these financial statements, in a position, having regard to the information available to it, to estimate the total amount of the claims that might finally be upheld against it by the various competent courts after the exhaustion of any avenues of appeal.

Kem One

The Group sold its vinyls activities, grouped into the Kem One Group, to the Klesch Group with effect from 1 July 2012.

On 27 March 2013, insolvency proceedings were opened against the company Kem One SAS. In a ruling of 20 December 2013, the Lyon commercial court designated the new owner of Kem One SAS, and put to an end the insolvency proceedings concerning the company.

An arbitration procedure was initiated against Arkema France by Klesch Chemicals Ltd and Klesch Group Ltd on 4 March 2013. In its decision issued on 24 November 2015, the International Chamber of Commerce Court of Arbitration dismissed all the claims made by Klesch Chemicals Ltd and Klesch Group Ltd against Arkema France, and ordered Klesch Chemicals Ltd to pay Arkema France €73.6 million in damages and Klesch Chemicals Ltd and Klesch Group Ltd to reimburse the majority of the costs incurred for this arbitration procedure. A petition by Klesch Chemicals Ltd and Klesch Group Ltd for cancellation of this arbitration ruling was filed with the Paris Appeal Court on 9 December 2015, and heard in court on 4 December 2018. On 22 January 2019 the Paris Appeal Court issued its judgment, rejecting the petition by Klesch Chemicals Ltd and Klesch Group Ltd, and ordering the two companies to pay Arkema France the sum of €200,000 in costs (under article 700 of the French Code of Civil Procedure).

Coem (Arkema France)

As there were no product supplies by Kem One SAS to the Italian company Coem, Coem in August 2012, and subsequently its shareholder Industrie Generali in March 2016, issued written complaints to Arkema France and Kem One that they had suffered losses through breach of commercial relations. On 27 June 2017 Industrie Generali brought a tort action before the Nanterre commercial court claiming €8.9 million from Arkema France in compensation for the banks' activation of the guarantees it had provided when Coem was placed in receivership. Arkema considers that these claims have no legal foundation, and no provision has been booked in the financial statements.

20.2.4 Personal Training Credits

Under the French personal training credit system (*Compte Personnel de Formation* or CPF) employees earn entitlements to hours of training, up to a maximum 150 hours each year. These entitlements are used at the employee's initiative, with the consent of the employer, when the CPF is used during working time; it can also be used outside working time.

The Arkema Group's investment in training represented approximately 3.5% of payroll costs in 2018.

NOTE 21 | Debt

Group net debt amounted to €1,006 million at 31 December 2018, taking account of cash and cash equivalents of €1,441 million.

21.1 ANALYSIS OF NET DEBT BY CATEGORY

(In millions of euros)	31/12/2018	31/12/2017
Bonds	2,219	2,219
Finance lease obligations	-	1
Bank loans	11	16
Other non-current debt	16	14
Non-current debt	**2,246**	**2,250**
Bonds	-	-
Finance lease obligations	-	1
Syndicated credit facility	-	-
Negotiable European Commercial Paper	-	-
Other bank loans	145	202
Other current debt	56	41
Current debt	**201**	**244**
Debt	**2,447**	**2,494**
Cash and cash equivalents	1,441	1,438
NET DEBT	**1,006**	**1,056**

Bonds

- In April 2012, the Group issued a €230 million bond that will mature on 30 April 2020, with a fixed coupon of 3.85%. A further €250 million tap issue was undertaken in October 2012, bringing the total amount of this bond issue to €480 million.

  At 31 December 2018 the fair value of this bond is €504 million.
- In December 2013, the Group issued a €150 million bond that will mature on 6 December 2023, with a fixed coupon of 3.125%.

  At 31 December 2018 the fair value of this bond is €163 million.
- In January 2015 the Group issued a €700 million bond that will mature on 20 January 2025, with a fixed coupon of 1.50%.

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At 31 December 2018 the fair value of this bond is €716 million.

- In April 2017, the Group issued a €700 million bond that will mature on 20 April 2027, with a fixed coupon of 1.5%. A further €200 million tap issue was undertaken in June 2017, bringing the total amount of this bond issue to €900 million.

At 31 December 2018 the fair value of this bond is €891 million.

The last three issues are part of the Group's Euro Medium Term Notes (EMTN) programme introduced in October 2013. The ceiling of the EMTN programme was raised to €3 billion in December 2018.

Negotiable European Commercial Paper

In April 2013 the Group introduced an annually-renewed Negotiable European Commercial Paper programme with a ceiling of €1 billion.

Issues outstanding as part of this programme amount to nil at 31 December 2018.

Syndicated credit facility

On 29 October 2014, the Group put in place a multi-currency syndicated credit facility of €900 million, with an initial duration of five years maturing on 29 October 2019, and the possibility of two one-year extensions subject to approval by the lenders, exercisable at the end of the first and the second year. The Group was authorized by its lenders to exercise these two extensions, bringing the maturity of this credit facility to 29 October 2021. This credit facility is intended to finance the Group's general requirements as a substitute line for the Negotiable European Commercial Paper programme, and includes an early repayment clause in the event of certain situations including a change in control of the Arkema Group. It includes: (i) standard information undertakings and commitments for this type of financing, and (ii) a financial undertaking by the Arkema Group to maintain the ratio of consolidated net debt to consolidated EBITDA (tested twice a year) at below 3.5.

21.2 ANALYSIS OF DEBT BY CURRENCY

The Arkema Group's debt is mainly denominated in euros.

(In millions of euros)	31/12/2018	31/12/2017
Euros	2,270	2,305
Chinese Yuan	147	142
US Dollars	9	12
Other	21	35
TOTAL	**2,447**	**2,494**

Part of the debt in Euros is converted through swaps to the accounting currency of internally-financed subsidiaries, in line with the Group's policy.

At 31 December 2018 the swapped portion, principally in US dollars, represented approximately 40% of gross debt.

21.3 ANALYSIS OF DEBT BY MATURITY

The breakdown of debt, including interest costs, by maturity is as follows:

(In millions of euros)	31/12/2018	31/12/2017
Less than 1 year	223	268
Between 1 and 2 years	534	55
Between 2 and 3 years	35	535
Between 3 and 4 years	29	35
Between 4 and 5 years	179	30
More than 5 years	1,679	1,853
TOTAL	**2,679**	**2,776**

NOTE 22 | Management of risks related to financial assets and liabilities

The Arkema Group's businesses expose it to various risks, including market risks (risk of changes in exchange rates, interest rates and the prices of raw materials, energy and equities), credit risk and liquidity risk.

22.1 FOREIGN CURRENCY RISK

The Group is exposed to transaction risks and translation risks related to foreign currencies.

The Group hedges the transaction risk mainly through spot foreign currency transactions or through forward transactions over short maturities generally not exceeding two years.

The fair value of the Group's forward foreign currency contracts is an asset of €3 million.

The amount of foreign exchange gains and losses recognized in recurring operating income at 31 December 2018 is a negative €5 million (positive €0.4 million at 31 December 2017).

The portion of foreign exchange gains and losses corresponding to the interest income/expense reflected by the difference between the spot exchange rate and the forward exchange rate is recorded in financial result. It amounts to a negative €31 million at 31 December 2018 (negative €21 million at 31 December 2017).

At 31 December 2018, the Group's balance sheet exposure in transaction currencies other than the euro is as follows:

Group exposure to operating foreign currency risk *(In millions of euros)*	**USD**	**CNY**	**Other currencies**
Accounts receivable	471	126	178
Accounts payable	(320)	(42)	(95)
Bank balances and loans/borrowings	44	(67)	35
Off balance sheet commitments (forward currency hedging)	(729)	(84)	(284)
NET EXPOSURE	**(534)**	**(67)**	**(166)**

This net exposure comprises all Group companies' outstanding amounts stated in any of the above currencies, whether their accounting currency is one of those currencies or a different currency.

22.2 INTEREST RATE RISK

Exposure to interest rate risk is managed by the Group's Central Treasury department and simple derivatives are used as hedging instruments. The Group has not entered into any interest rate hedges at 31 December 2018.

An increase (decrease) of 1% (100 basis points) in interest rates would have the effect of decreasing (increasing) the interest on net debt by €7 million.

At 31 December 2018, debt is distributed between variable and fixed rates as follows:

	Variable rates	**Fixed rates**		**Total**
(In millions of euros)	**Overnight-1 year**	**1-5 years**	**Over 5 years**	
Current and non-current debt	(212)	(631)	(1,604)	(2,447)
Cash and cash equivalents	1,441	-	-	1,441
Net exposure before hedging	1,229	(631)	(1,604)	(1,006)
Hedging instruments	-	-	-	-
Off-balance sheet items	-	-	-	-
NET EXPOSURE AFTER HEDGING	**1,229**	**(631)**	**(1,604)**	**(1,006)**

22.3 LIQUIDITY RISK

The Group's Central Treasury department manages the liquidity risk associated with the Group's debt.

Liquidity risk is managed with the main objective of providing the Group with sufficient financial resources to honour its commitments, and, in the context of meeting this objective, optimizing the annual financial cost of the debt.

In almost all cases, Group companies obtain their financing from, and manage their cash with, Arkema France or other Group entities that manage cash pooling mechanisms.

The Group reduces the liquidity risk by spreading maturities, favouring long maturities and diversifying its sources of financing. The Group thus has:

- a €900 million bond maturing on 20 April 2027;
- a €700 million bond maturing on 20 January 2025;
- a €150 million bond maturing on 6 December 2023;
- a €480 million bond maturing on 30 April 2020; and
- a €900 million syndicated credit facility maturing on 29 October 2021. This credit facility is used particularly as a substitute line for the Negotiable European Commercial Paper programme (see note C21, "Debt").

Apart from a change of control, the main circumstances in which early repayment or termination could occur concern the syndicated credit facility (see note C21 "Debt"), if the ratio of consolidated net debt to consolidated EBITDA exceeds 3.5.

At 31 December 2018, the Group's debt maturing in more than one year is rated BBB+/stable outlook by Standard & Poor's and Baa2/positive outlook by Moody's.

Negotiable European Commercial Paper issues are rated A-2 by Standard & Poor's.

The Group's net debt at 31 December 2018 amounts to €1,006 million and represents 0.7 times the consolidated EBITDA for the year 2018.

At 31 December 2018, the amount of the unused syndicated credit facility is €900 million and the amount of cash and cash equivalents is €1,441 million.

Note C21 "Debt" provides details of the maturities of debt.

22.4 CREDIT RISK

The Group is potentially exposed to credit risk on its accounts receivable and as regards its banking counterparties.

Credit risk on accounts receivable is limited because of the large number of its customers and their geographical dispersion. No customer represented more than 3% of Group sales in 2018. The Group's general policy for managing credit risk involves assessing the solvency of each new customer before entering into business relations: each customer is allocated a credit limit, which constitutes the maximum level of outstandings (receivables plus orders) accepted by the Group, on the basis of the financial information obtained on the customer and the analysis of solvency carried out by the Group. These credit limits are revised regularly and, in any case, every time that a material change occurs in the customer's financial position. Customers who cannot obtain a credit limit because their financial position is not compatible with the Group's requirements in terms of solvency only receive deliveries when they have paid for their order.

For several years, the Group has covered its accounts receivable credit risk through a global credit insurance programme. On account of the statistically low bad debt rate experienced by the Group, the rate of cover is significant. Customers with whom the Group wishes to continue commercial relations but which are not covered by this insurance are subject to specific centralized monitoring. Rollout of this credit risk insurance programme in the Den Braven companies acquired in late 2016 was completed during 2018.

In addition, the Group's policy for recognizing bad debt provisions in respect of receivables not covered by credit insurance, or the portion of receivables that are not so covered, has three components: receivables are individually provided against as soon as a specific risk of loss (economic and financial difficulties of the customer in question, entry into receivership, etc.) is clearly identified. The Group may also recognize general provisions for receivables that are overdue for such a period that the Group considers that a statistical risk of loss exists. These periods are adapted depending on the Business Lines and the geographical regions in question. Finally, the Group makes sure that the provisions determined in this way are not lower than expected credit losses, which are estimated based on individual credit scores for customers, multiplied by coefficients for the probability of default.

At 31 December 2018, accounts receivable net of provisions are distributed as follows:

Accounts receivable net of provisions

(In millions of euros)	31/12/2018	31/12/2017
Receivables not yet due	1,121	1,036
Receivables overdue by 1-15 days	77	36
Receivables overdue by 16-30 days	16	34
Receivables overdue by more than 30 days	32	9
TOTAL NET RECEIVABLES	**1,246**	**1,115**

Banking credit risk is related to financial investments, derivatives and credit facilities granted by banks. The Group limits its exposure to credit risk by only investing in liquid securities with first-class commercial banks.

The net carrying amount of financial assets indicated in note C23 “Presentation of financial assets and liabilities” represents the maximum exposure to credit risk.

22.5 RISK RELATED TO RAW MATERIALS AND ENERGY

The prices of certain raw materials used by the Group can be highly volatile, with fluctuations leading to significant variations in the cost price of the Group’s products; in addition, because certain of its manufacturing processes have significant requirements in terms of energy resources, the Group is also sensitive to changes in the price of energy. In order to limit the impact of the price volatility of the principal raw materials it uses, the Group may decide to use derivatives matched with existing contracts, or negotiate fixed price contracts for limited periods.

Recognition of these derivatives generated an expense of €2 million in the income statement at 31 December 2018 (expense of €4 million at 31 December 2017).

22.6 EQUITY RISK

At 31 December 2018 the Company held 318,998 of its own shares. These shares are used to cover its free share grant plans.

In compliance with IAS 32, changes in share price have no impact on the Group’s consolidated net assets.

The equity risk is not material for the Company.

NOTE 23 | Presentation of financial assets and liabilities

23.1 FINANCIAL ASSETS AND LIABILITIES BY ACCOUNTING CATEGORY

2018

IFRS 9 category: Class of instrument *(In millions of euros)*	Notes	**Assets/liabilities measured at fair value through profit or loss**	**Assets/liabilities measured at fair value through shareholders’ equity**	**Assets/liabilities measured at amortized cost**	**Total net carrying amount**
Other investments	(C12)	0	33	-	33
Other non-current assets (loans and advances, security deposits paid)	(C13)	-	3	130	133
Accounts receivable	(C15)	-	-	1,247	1,247
Cash and cash equivalents	(C16)	1,441	-	-	1,441
Derivatives*	(C23.2)	6	1,	-	7
FINANCIAL ASSETS		**1,447**	**37**	**1,377**	**2,861**
Current and non-current debt	(C21)	-	-	2,447	2,447
Accounts payable	(C24)	-	-	1,037	1,037
Derivatives*	(C23.2)	6	1	-	7
FINANCIAL LIABILITIES		**6**	**1**	**3,484**	**3,491**

* *Derivatives are carried in the balance sheet in “Other current financial assets” and “Other current financial liabilities”.*

2017 IAS 39 category: Class of instrument *(In millions of euros)*	Notes	Assets/liabilities measured at fair value through profit or loss	Assets/liabilities measured at fair value through shareholders' equity	Assets/liabilities measured at amortized cost	Available-for-sale assets	Total net carrying amount
Other investments	(C1)	-	-	-	30	30
Other non-current assets (loans and advances, security deposits paid)	(C13)	-	-	112	-	112
Accounts receivable	(C15)	-	-	1,115	-	1,115
Cash and cash equivalents	(C16)	1,438	-	-	-	1,438
Derivatives*	(C23.2)	17	0	-	-	17
FINANCIAL ASSETS		**1,455**	**0**	**1,227**	**30**	**2,712**
Current and non-current debt	(C21)	-	-	2,494	-	2,494
Accounts payable	(C24)	-	-	965	-	965
Derivatives*	(C23.2)	8	2	-	-	10
FINANCIAL LIABILITIES		**8**	**2**	**3,459**	**0**	**3,469**

* *Derivatives are carried in the balance sheet in "Other current financial assets" and "Other current financial liabilities".*

At 31 December 2018 as at 31 December 2017, the fair value of financial assets and liabilities is approximately equal to the net carrying amount, except in the case of bonds.

23.2 DERIVATIVES

The main derivatives used by the Group are as follows:

	Notional amount of contracts at 31/12/2018			Notional amount of contracts at 31/12/2017			Fair value of contracts	
(In millions of euros)	< 1 year	<5 years and >1 year	> 5 years	< 1 year	<5 years and >1 year	> 5 years	31/12/2018	31/12/2017
Forward foreign currency contracts	1,711	-	-	1,959	-	-	0	8
Commodities and energy swaps	7	14	-	9	7	-	(0)	(2)
TOTAL	**1,718**	**14**	**-**	**1,968**	**7**	**-**	**0**	**6**

23.3 IMPACT OF FINANCIAL INSTRUMENTS ON THE INCOME STATEMENT

The income statement includes the following items related to financial assets (liabilities):

(In millions of euros)	2018	2017
Total interest income (expenses) on financial assets and liabilities*	(60)	(75)
Impact on the income statement of valuation of derivatives at fair value	(7)	(8)
Impact on the income statement of operations on other investments	5	4

* *Excluding interest costs on pension obligations and the expected return on related plan assets.*

The amount of foreign exchange gains and losses recognized in recurring operating income in 2018 is a negative €5 million (positive €0.4 million at 31 December 2017).

23.4 IMPACT OF FINANCIAL INSTRUMENTS ON SHAREHOLDERS' EQUITY

At 31 December 2018, the impact of financial instruments net of deferred taxes on the Group's shareholders' equity is a positive €1 million (nil at 31 December 2017), essentially reflecting the net-of-tax fair value of foreign currency and commodity hedges

NOTE 24 | Accounts payable, other creditors and accrued liabilities

Accounts payable amount to €1,037 million at 31 December 2018 (€965 million at 31 December 2017).

Other creditors and accrued liabilities mainly comprise employee-related liabilities for €235 million at 31 December 2018 (€232 million at 31 December 2017) and amounts owing to governments for €70 million at 31 December 2018 (€92 million at 31 December 2017), including €32 million of VAT (€42 million at 31 December 2017).

NOTE 25 | Personnel expenses

Personnel expenses, including stock options and free share grants (see note C27 "Share-based payments"), amount to €1,388 million in 2018 (€1,354 million in 2017).

They comprise €1,040 million of wages and salaries and IFRS 2 expenses (€1,007 million in 2017) and €348 million of social charges (€347 million in 2017).

NOTE 26 | Related parties

26.1 TRANSACTIONS WITH NON-CONSOLIDATED OR EQUITY ACCOUNTED COMPANIES

Transactions between consolidated companies have been eliminated in the consolidation process. In addition, in the normal course of business, the Group has business relationships with certain non-consolidated companies or with companies which are accounted for under the equity method. The values involved are not significant.

26.2 COMPENSATION OF KEY MANAGEMENT PERSONNEL

Key management personnel of a group, as defined in IAS 24, are those persons having authority and responsibility for planning, directing and controlling the activities of the entity, directly or indirectly, including any director (whether executive or otherwise) of that entity.

The key management personnel of the Group are the directors and the members of its Executive Committee (Comex).

The compensation and benefits of all kinds recognized in expenses by the Group are as follows:

(In millions of euros)	2018	2017
Salaries and other short-term benefits	8	7
Pensions, other post-employment benefits and contract termination benefits	-	-
Other long-term benefits	-	-
Share-based payments	6	4

Salaries and other short-term benefits comprise all types of remuneration recorded, including variable amounts, bonuses, attendance fees and benefits in kind.

The Chairman and CEO is entitled to a contractual indemnity in the event of non-voluntary departure, up to a maximum of two years' total gross compensation (fixed and variable), subject to achievement of performance criteria.

NOTE 27 | Share-based payments

27.1 STOCK OPTIONS

The Board of Directors has decided not to introduce any further stock option plans.

Movements in the stock option plans granted in previous years and still outstanding at 31 December 2018 are as follows:

Plan	Total number of options granted*	Exercise price*	Number of options exercised in 2018	Number of options cancelled in 2018	Total number of options exercised	Total number of options outstanding	Final year for exercising options
2010-1	230,044	29.33	21,290	1,559	221,485	-	2018
2010-2	233,513	29.33	22,555	1,465	209,874	-	2018
2011-1	109,082	65.92	17,178	-	99,082	10,000	2019
2011-2	109,082	65.92	39,558	-	76,354	32,728	2019

* *After adjustment following the capital increase with preferential subscription rights of November 2014.*

Valuation method

The fair value of the options granted was determined using the Black & Scholes method on the basis of assumptions. The main assumptions are as follows:

	Plan 2010-1	Plan 2010-2	Plan 2011-1	Plan 2011-2
Volatility	35%	32%	32%	32%
Risk-free interest rate	0.34%	0.34%	1.29%	1.29%
Maturity	4 years	5 years	4 years	4 years
Exercise price *(in euros)*	30.47	30.47	68.48	68.48
Fair value of stock options *(in euros)*	**6.69**	**6.67**	**12.73**	**12.73**

The volatility assumption was determined on the basis of observation of historical movements in the Arkema share since its admission to listing, restated for certain non-representative days in order to better represent the long-term trend.

The maturity adopted for the options corresponds to the period of unavailability for tax purposes.

The amount of the IFRS 2 expense recognized in respect of stock options at 31 December 2018 was nil (also nil at 31 December 2017).

27.2 FREE SHARE GRANTS

On 5 November 2018, the Board of Directors decided to put in place two performance share plans for the benefit of Group employees, particularly employees with responsibilities whose exercise influences the Group's results.

Movements in the free share grant plans existing at 31 December 2018 are as follows:

Plan	Grant date	Vesting period	Conservation period	Total number of free shares granted	Number of shares subject to performance conditions	Fair value *(euros per share)*	Number of shares definitively granted in 2018	Number of shares cancelled in 2018	Total number of shares still to be granted at 31/12/2018
2014-1, 3	6 May 2014	3-4 years	0-3 years	**17,118**	-	53.63	11,865	1,279	-
2014-2	13 Nov 2014	4 years	-	**275,000**	203,535	33.41	243,337	25,688	-
2015-1	9 Nov 2015	4 years	-	**285,525**	285,525	42.31	-	5,410	**274,415**
2015-2	9 Nov 2015	4 years	-	**59,595**	-	42.31	-	2,620	**55,315**
2016-1, 2	10 May 2016	3-4 years	0-3 years	**43,278**	-	22.91-39.70	-	-	**43,278**
2016-3	7 Jun 2016	1-3 years	2 years	**50,000**	-	41.04-53.53	16,667	-	**16,666**
2016-4	9 Nov 2016	3 years	2 years	**235,835** (1)	226,040	47.31	-	2,450	**231,035**
2016-5	9 Nov 2016	4 years	-	**122,080** (2)	112,860	50.01	-	4,875	**116,745**
2017-1	8 Nov 2017	3 years	2 years	**230,695** (3)	218,255	63.59	-	440	**230,235**
2017-2	8 Nov 2017	4 years	-	**129,405** (4)	114,845	67.88	-	3,810	**125,405**
2018-1, 2	2 May 2018	3-4 years	0-3 years	**41,137**	-	59.31-61.13	-	15	**41,122**
2018-3	5 Nov 2018	3 years	2 years	**231,820** (5)	217,570	62.64	-	-	**231,820**
2018-4	5 Nov 2018	4 years	-	**127,665** (6)	111,235	64.15	-	-	**127,665**

(1) May be raised to 258,439 in the event of outperformance.
(2) May be raised to 133,366 in the event of outperformance.
(3) May be raised to 252,521 in the event of outperformance.
(4) May be raised to 140,890 in the event of outperformance.
(5) May be raised to 254,011 in the event of outperformance.
(6) May be raised to 139,261 in the event of outperformance.

The amount of the IFRS 2 expense recognized in respect of free shares at 31 December 2018 is €20 million (€14 million at 31 December 2017).

27.3 CAPITAL INCREASE RESERVED FOR EMPLOYEES

In line with its employee shareholding policy, the Arkema Group offered its employees the possibility to subscribe to a reserved capital increase at the subscription price of €81.97. This price corresponds to the average opening price of the Arkema share quoted on the Paris stock exchange in the 20 trading days prior to the Chairman and CEO's decision of 6 March 2018 setting the terms of the capital increase, minus a 20% discount.

The shares subscribed through this operation cannot be sold for 5 years, except in the United States where the minimum holding period is 3 years.

The employees subscribed 610,405 shares for the total value of €50 million. The capital increase was recognized on 25 April 2018 and completed on 26 April 2018.

Arkema shares were also given to Group employees located outside France, via a free share grant plan: one free share was awarded for every four shares subscribed, up to a maximum of 25 free shares per person.

As a result, on 2 May 2018 the Board of Directors formally recorded the attribution of 39,407 free shares to employees located outside France. These shares will only be definitively granted after a vesting period of 3 or 4 years, depending on the country.

Finally, on 2 May 2018, the Board of Directors decided to put in place a plan to award 1,730 free shares for the benefit of Group employees who had not been able to participate in the capital increase reserved for employees undertaken on 26 April 2018. The only condition for awarding these shares is a presence condition, and they will be definitively granted after a vesting period of 4 years from the date of the Board's decision to award them.

Valuation method

In accordance with the method recommended by France's national accounting standards authority (*Autorité des normes comptables*), the calculation used to value the cost of not being able to sell the shares for a certain period is based on the cost of a two-step strategy assuming that these shares will ultimately be sold, and that the same number of shares will be purchased and settled immediately, financed by a loan. The rate used for the loan is the rate that a bank or a credit institution would grant to a private individual presenting an average risk profile in the context of a 5-year consumer loan.

The fair values of the shares subscribed in France and outside France have been calculated separately in order to reflect the grants of free shares to Group employees located outside France.

The main market parameters used in the valuation of the cost of not being able to sell the shares are as follows:

Country of subscription	France	United States	Italy and Spain	Other countries
Date of the Board meeting which decided on the capital increase	6 March 2018	6 March 2018	6 March 2018	6 March 2018
Share price at the date of the Board meeting *(€)*	107.15	107.15	107.15	107.15
Risk-free interest rate (at 6 March 2018)*	0.11%	2.42%	0.64%	0.05%
Borrowing rate**	7.19%	9.64%	7.19%	9.47%
Cost of not being able to sell the shares (as a percentage of the share price)	27.37%	20.37%	27.65%	34.68%

** 5-year risk-free rate, except for the United States (3 years)*
*** Rate on 5-year borrowings*

The difference between the share price at the date of the Chairman and CEO's decision setting the terms of the operation and the subscription price is €25.18 per share, representing a total benefit granted to employees of €15 million.

An IFRS 2 expense of €2 million will also be recognized in respect of the free shares granted to Group employees located outside France. This expense will be spread over the vesting period of the shares concerned (see note C27.2 "Free share grants").

NOTE 28 | Information on cash flows

Additional information on amounts received and paid as operating cash flows are presented below:

(In millions of euros)	31/12/2018	31/12/2017
Interest paid	59	68
Interest received	0	0
Income taxes paid	173	182

Details of the monetary change in working capital are as follows:

(In millions of euros)	31/12/2018	31/12/2017
Inventories	23	(90)
Accounts receivable	(119)	(45)
Other receivables including income taxes	(15)	(9)
Accounts payable	7	74
Other liabilities including income taxes	(26)	29
CHANGE IN WORKING CAPITAL	**(130)**	**(41)**

NOTE 29 | Off-balance sheet commitments

29.1 COMMITMENTS GIVEN

29.1.1 Off-balance sheet commitments given in the Group's operating activities

The main commitments given are summarized in the table below:

(In millions of euros)	**31/12/2018**	**31/12/2017**
Guarantees granted	75	76
Comfort letters	-	-
Contractual guarantees	7	11
Customs and excise guarantees	17	14
TOTAL	**99**	**101**

Guarantees granted are mainly bank guarantees in favour of local authorities and public bodies (state agencies, environmental agencies) in respect of environmental obligations or concerning classified sites.

29.1.2 Contractual commitments related to the Group's operating activities

Irrevocable purchase commitments

In the normal course of business, the Arkema Group has signed multi-year purchase agreements for raw materials and energy for the operational requirements of its factories, in order to guarantee the security and continuity of supply. Signature of such contracts over initial periods generally comprised between one and ten years is a normal practice for companies in the Group's business sector in order to cover their needs.

These purchase commitments were valued taking into account, on a case-by-case basis, Arkema's financial commitment to its suppliers, as certain of these contracts include clauses which oblige the Group to take delivery of the minimum volumes as set out in the contract or, otherwise, to pay financial compensation to the supplier. Depending on the case, these commitments are reflected in the purchase contracts in the form of notice periods, indemnification to be paid to the supplier in case of early termination of the contract or "take or pay" clauses. The value of these agreements thus corresponds to the minimum amount payable to suppliers as indemnification in the event of termination of the contracts or failure to take delivery of the minimum contractual quantities, less any quantities that can be resold on the market when the Group is able to do so.

The total amount of the Group's financial commitments is €658 million at 31 December 2018, maturing as follows:

(In millions of euros)	**31/12/2018**	**31/12/2017**
2018	-	207
2019	202	77
2020	69	55
2021	67	39
2022 until expiry of the contracts	320	86
TOTAL	**658**	**464**

Lease commitments

In the context of its business, the Arkema Group has signed lease contracts, of which the majority are operating lease agreements. Lease agreements signed by the Group are mainly in respect of property rental (head offices, land) and transportation equipment (rail cars, containers).

The amounts presented in the table below correspond to the future minimum payments that will need to be made in accordance with these contracts (only the irrevocable portion of future lease payments has been valued).

Non-capitalized leases *(In millions of euros)*	31/12/2018	31/12/2017
2018	-	25
2019	28	21
2020	26	17
2021	20	14
2022 and beyond	52	34
NON-DISCOUNTED VALUE OF FUTURE LEASE PAYMENTS	**126**	**111**

From 1 January 2019, the Group's lease commitments will be recorded in application of IFRS 16 "Leases". In the balance sheet, the Group will recognize an asset corresponding to the right to use the leased asset, and an equivalent financial liability. In the income statement, the lease payment expense will be replaced by amortization of the right to use the asset, recognized in Depreciation, amortization and impairment, and an interest expense, recognized in Financial result. The cash flow statement will also be impacted. Instead of the lease payments, which were previously presented in "cash flow from operating activities", the Group will record repayments of the financial liability presented in "cash flow from financing activities" and a financial interest expense presented in "cash flow from operating activities".

The Group has decided to apply this standard under the modified retrospective approach, and opted for the two exemptions from capitalization it allows for leases of less than twelve months and leases of goods with an individual value of less than USD5,000 when new. For simplification, the Group has excluded a certain number of subsidiaries from the scope of application of IFRS 16. The combined impact of the excluded lease contracts is not material for the Group.

The lease term will be the irrevocable period, extended where applicable by any renewal options the Group is reasonably certain to use; in particular, the Group will apply the recommendation issued by the *Autorité des normes comptables* to real estate property leases in France, taking as the maximum term the longest term, *i.e.* 9 years. The lease commitment at 1 January 2019 will be calculated under IFRS 16, applying the discount rates in force at that date over the residual term of the lease. As the implicit interest rate of the contracts is not easily determined, the Group has applied a discount rate based on the subsidiaries' estimated incremental borrowing rate.

The Group has finalised the identification of the great majority of existing lease contracts, but some are still being analysed and an IT solution has been introduced and rolled out to the Group's subsidiaries for management of these contracts.

At the date of publication, based on current leases, the Group has concluded from a preliminary estimation that application of IFRS 16 would have the following impacts:

- in the balance sheet, the amount of assets and financial liabilities would increase by less than 2% of total assets. This impact is similar to the lease commitments reported in these notes. Any differences would mainly be due to the materiality and scope criteria used to identify the lease contacts concerned, and the adjustment to present value of the lease payments in accordance with the new standard. The rights of use recognized principally relate to real estate assets (around 50%) and logistics equipment (around 40%), excluding services;
- in the income statement, EBITDA would increase by approximately 3%, and the impact on the current operating income and net income would be negligible;
- the cash flow from operating activities would increase by a similar amount to EBITDA. The cash flow from financing activities should decrease by the same amount.

29.1.3 Off-balance sheet commitments related to changes in the scope of consolidation

Warranties related to sales of businesses

When selling businesses, the Arkema Group has sometimes granted the purchaser warranties in respect of unrecorded liabilities. In most cases these warranties are capped and granted for a limited period of time. They are also limited in terms of their coverage to certain types of expenses or litigation. In the majority of cases, they cover risks of occurrence of environmentally related expenses or litigation.

The cumulative residual amount of capped warranties in respect of unrecorded liabilities granted by the Group amounts to €85 million at 31 December 2018 (€83 million at 31 December 2017). These amounts are stated net of provisions recognized in the balance sheet in respect of such warranties.

29.1.4 Off-balance sheet commitments related to Group financing

These commitments are described in note C21 "Debt".

29.2 COMMITMENTS RECEIVED

Commitments received from Total in 2006

In connection with the Spin-Off of Arkema's Businesses, Total S.A. and certain Total companies extended certain indemnities, or assumed certain obligations, for the benefit of the Arkema Group. Some are still in application while others terminated during 2017. The indemnities and obligations concerned are described below, and relate to actual or potential environmental liabilities of the Group arising from certain sites in France, Belgium and the United States, the operations on which in the majority of cases have ceased.

Obligations and indemnities given in respect of Former Industrial Sites

In order to cover certain risks relating to certain industrial sites situated in France, Belgium and the United States in respect of which the Group is or could be held liable, and where, for the most part, operations have ceased (the Former Industrial Sites), Total S.A. companies have entered into indemnity and service agreements with Arkema or its subsidiaries.

Pursuant to these agreements, the obligations and environmental responsibilities associated with these former industrial sites in France and at Rieme in Belgium were transferred to Total S.A. group companies.

Agreement relating to certain former industrial sites located in the United States

In March 2006, Arkema Amériques SAS completed the acquisition from Elf Aquitaine Inc. and Arkema France of Arkema Delaware Inc., a holding company for most of the Group's operations in the United States. The negotiated terms of the stock purchase agreement among Elf Aquitaine Inc., Legacy Site Services and Arkema Amériques SAS, dated 7 March 2006 (the Arkema Delaware Main SPA) required Elf Aquitaine Inc. to use $270 million to capitalize a new subsidiary, Legacy Site Services LLC, that performs remediation services and indemnify the Group against the cost of environmental contamination liabilities incurred by the Group entities covered by this indemnity, and related personal injury and property damage claims associated with contamination at 35 of the Group's closed and formerly operated facilities and 24 third party sites where the Group's liability arises solely out of waste shipments from the sites other than currently operated sites. In exchange for this indemnification, Arkema Amériques SAS agreed to grant to Legacy Site Services LLC control over remediation activities and the defence of claims relating to contamination liabilities at these facilities and sites.

The sites currently operated by the Group are excluded from this indemnity, as are sites that received waste associated with current operations of the Group, certain sites where no significant restoration work is currently underway or anticipated, and other sites where the Group could be held liable for environmental pollution. These other sites include, for example, sites where remediation has been conducted in the past or where future remediation costs or liability are believed to be insignificant or non-existent based upon information available at the time when the indemnity was entered into. Arkema Amériques SAS has waived any claims against Legacy Site Services LLC, Total S.A. or their respective subsidiaries in respect of the sites not covered by the indemnity.

The Legacy Site Services LLC indemnity covers the costs of restoration and clean-up of the soil and groundwater, the costs of related defence and settlement costs and personal injury, property and natural resource damages. The indemnity does not cover liabilities unrelated to site remediation, in particular liabilities in respect of products manufactured on the said sites, liability arising from certain dangerous and potentially dangerous substances, particularly asbestos exposure and criminal liability.

The indemnity described above is capped at $270 million. The amount received by Arkema under this indemnity amounts to $107 million. At the same time as the stock purchase agreement and the indemnity described above, Legacy Site Services LLC and Arkema Inc. entered into a supplemental contamination indemnity agreement pursuant to which Legacy Site Services LLC will indemnify the liabilities of the Group in excess of $270 million, on the same terms, for the same sites and subject to the same exceptions as the indemnity described in the preceding paragraph.

NOTE 30 | Statutory auditors' fees

(In millions of euros)	KPMG 2018	KPMG 2017	Ernst & Young 2018	Ernst & Young 2017
AUDIT				
Auditing, certification, review of individual and consolidated financial statements	**2.7**	**2.7**	**2.5**	**2.8**
Issuer	0.7	0.6	0.7	0.6
Fully consolidated subsidiaries	2.0	2.1	1.8	2.2
Other due diligence work and services directly related to the auditors' mission	**0.2**	**0.3**	**0.1**	**0.1**
Issuer	0.1	0.1	0	0
Fully consolidated subsidiaries	0.1	0.2	0.1	0.1
SUB-TOTAL	**2.9**	**3.0**	**2.6**	**2.9**
Other services provided by the networks to fully consolidated subsidiaries	-	-	-	-
TOTAL	**2.9**	**3.0**	**2.6**	**2.9**

In application of an internal rule validated by the Audit Committee, the amount of fees for other due diligence work and services directly related to the auditors' mission shall not exceed 30% of fees for the audit of the individual and consolidated financial statements.

NOTE 31 | Subsequent events

None.

D. Scope of consolidation at 31 December 2018

(a) Companies which changed their name in 2018.
(b) Companies merged in 2018.
(c) Companies liquidated in 2018.
(d) Companies consolidated for the first time in 2018.
(e) Companies for which the percentage ownership was changed in 2018, with no change to control.

The percentage of control indicated below also corresponds to the Group's ownership interest.

AEC Polymers		France	100.00	FC
Afinitica Process Technologies S.L.	(d)	Spain	100.00	FC
Afinitica Technologies S.L.	(d)	Spain	100.00	FC
Altuglas International Denmark A/S		Denmark	100.00	FC
Altuglas International Mexico Inc.		United States	100.00	FC
Altuglas International SAS		France	100.00	FC
American Acryl LP		United States	50.00	JO
American Acryl NA, LLC		United States	50.00	JO
Arkema		South Korea	100.00	FC
Arkema		France		FC
Arkema Afrique		France	100.00	FC
Arkema Amériques S.A.S.		France	100.00	FC
Arkema Antwerp	(a)	Belgium	100.00	FC
Arkema Asie S.A.S.		France	100.00	FC
Arkema B.V.		Netherlands	100.00	FC
Arkema Canada Inc.		Canada	100.00	FC
Arkema (Changshu) Chemicals Co., Ltd.		China	100.00	FC
Arkema (Changshu) Fluorochemical Co., Ltd.		China	100.00	FC
Arkema Chemicals India Private Ltd.		India	100.00	FC
Arkema (Changshu) Polyamides Co., Ltd.		China	100.00	FC
Arkema (China) Investment Co., Ltd.		China	100.00	FC
Arkema Coatex Brasil Indústria e Comércio Ltda.	(a)	Brazil	100.00	FC
Arkema Coating Resins Malaysia Sdn. Bhd.		Malaysia	100.00	FC
Arkema Coating Resins Ltd.		United Kingdom	100.00	FC
Arkema Company Ltd.		Hong Kong	100.00	FC
Arkema Daikin Advanced Fluorochemicals (Changshu) Co., Ltd.		China	60.00	JO
Arkema Delaware Inc.		United States	100.00	FC
Arkema Europe		France	100.00	FC
Arkema France		France	100.00	FC
Arkema GmbH		Germany	100.00	FC
Arkema (Hong Kong) Co., Ltd.		Hong Kong	100.00	FC
Arkema Hydrogen Peroxide Co., Ltd. Shanghai		China	66.67	FC
Arkema Inc.		United States	100.00	FC
Arkema Insurance Designated Activity Company		Ireland	100.00	FC

Arkema K.K.		Japan	100.00	FC
Arkema Kimya Sanayi ve Ticaret A.S		Turkey	100.00	FC
Arkema Ltd.		United Kingdom	100.00	FC
Arkema Mexico S.A. de C.V.		Mexico	100.00	FC
Arkema Mexico Servicios S.A. de C.V.		Mexico	100.00	FC
Arkema Peroxides India Private Limited		India	100.00	FC
Arkema Pte. Ltd.		Singapore	100.00	FC
Arkema Pty Ltd.		Australia	100.00	FC
Arkema Quimica Ltda		Brazil	100.00	FC
Arkema Quimica SAU		Spain	100.00	FC
Arkema Chemicals Saudi Arabia	(a)	Saudi Arabia	51.00	FC
Arkema (Shanghai) Distribution Co., Ltd.		China	100.00	FC
Arkema Sp z.o.o		Poland	100.00	FC
Arkema S.r.l		Italy	100.00	FC
Arkema (Suzhou) Polyamides Co., Ltd.		China	100.00	FC
Arkema Taixing Chemicals Co., Ltd.		China	100.00	FC
Arkema Thiochemicals Sdn Bhd		Malaysia	86.00	FC
Arkema Yoshitomi Ltd.		Japan	49.00	SI
Barrflex TU LLC	(d)	United States	49.00	JV
Bostik AB		Sweden	100.00	FC
Bostik Argentina S. A.		Argentina	100.00	FC
Bostik A/S		Denmark	100.00	FC
Bostik AS		Norway	100.00	FC
Bostik Australia Pty Ltd.		Australia	100.00	FC
Bostik Belux S.A. – N.V.		Belgium	100.00	FC
Bostik B.V.		Netherlands	100.00	FC
Bostik Canada Ltd.		Canada	100.00	FC
Bostik Egypt For Production of Adhesives S.A.E		Egypt	100.00	FC
Bostik Findley China Co., Ltd		China	100.00	FC
Bostik Findley (Malaysia) Sdn. Bhd.		Malaysia	100.00	FC
Bostik GmbH		Germany	100.00	FC
Bostik Hellas S.A.	(a)	Greece	100.00	FC
Bostik Holding Hong Kong Ltd.		Hong Kong	100.00	FC
Bostik Holding SA		France	100.00	FC
Bostik Inc.		United States	100.00	FC
Bostik India Private Ltd.		India	100.00	FC
Bostik Industries Ltd.		Ireland	100.00	FC
Bostik Kimya Sanayi Ve Ticaret A.S	(a)	Turkey	100.00	FC
Bostik Korea Ltd.		South Korea	100.00	FC
Bostik Ltd.		United Kingdom	100.00	FC
Bostik Mexicana S.A. de C.V.		Mexico	100.00	FC
Bostik Nederland B.V.		Netherlands	100.00	FC
Bostik New Zealand Ltd.		New Zealand	100.00	FC
Bostik-Nitta Co., Ltd.	(e)	Japan	80.00	FC
Bostik L.L.C.		Russia	100.00	FC

Bostik OY		Finland	100.00	FC
Bostik Philippines Inc.		Philippines	100.00	FC
Bostik Polska sp Z.o.o	(b)	Poland	100.00	FC
Bostik SA		France	100.00	FC
Bostik S.A.		Spain	100.00	FC
Bostik (Shanghai) Management Co., Ltd.		China	100.00	FC
Bostik Sp z.o.o.	(a)	Poland	100.00	FC
Bostik (Thailand) Co., Ltd		Thailand	100.00	FC
Bostik UAB		Lithuania	100.00	FC
Bostik Vietnam Company Ltd.		Vietnam	100.00	FC
Casda Biomatérials Co., Ltd	(a)	China	100.00	FC
Changshu Coatex Additives Co., Ltd.		China	100.00	FC
Changshu Haike Chemical Co., Ltd.		China	49.00	FC
CJ Bio Malaysia Sdn. Bhd.		Malaysia	14.00	SI
Coatex Asia PacificInc.		South Korea	100.00	FC
Coatex CEEs.r.o		Slovakia	100.00	FC
Coatex Inc.		United States	100.00	FC
Coatex Netherlands B.V.		Netherlands	100.00	FC
Coatex		France	100.00	FC
Daikin Arkema Refrigerants Asia Ltd.		Hong Kong	40.00	JV
Daikin Arkema Refrigerants Trading (Shanghai) Co., Ltd.		China	40.00	JV
DBEW Holding BV	(b)	Netherlands	100.00	FC
Debratec GmbH		Germany	100.00	FC
Den Braven Aerosols GmbH & Co. Kg		Germany	100.00	FC
Den Braven Beheer BV	(b)	Netherlands	100.00	FC
Den Braven Belgium N.V.		Belgium	100.00	FC
Den Braven Benelux B.V.		Netherlands	100.00	FC
Den Braven Endüstriyel Yapiştiricilar Sanayi Ve Ticaret Limited Şirketi	(b)	Turkey	100.00	FC
Den Braven France		France	100.00	FC
Den Braven Holding BV	(b)	Netherlands	100.00	FC
Den Braven OG BV	(b)	Netherlands	100.00	FC
Den Braven Produtos Quimicos, Unipessoal, Lda.		Portugal	100.00	FC
Den Braven Romania Comex S.r.l		Romania	100.00	FC
Den Braven Sealants Espana SL	(b)	Spain	100.00	FC
Den Braven Sealants GmbH		Austria	100.00	FC
Den Braven SA (Proprietary) Ltd.		South Africa	100.00	FC
Delaware Chemicals Corporation		United States	100.00	FC
Distri-Mark France		France	100.00	FC
Febex SA		Switzerland	96.77	FC
Ihsedu Agrochem Private Ltd.		India	24.90	SI
Jiangsu Bostik Adhesive Co., Ltd		China	100.00	FC
MEM BAUCHEMIE GmbH		Germany	100.00	FC
Michelet Finance, Inc.		United States	100.00	FC
MLPC International		France	100.00	FC
Mydrin Srl	(b)	Italy	100.00	FC

Odor-Tech LLC		United States	100.00	FC
Ozark Mahoning Company		United States	100.00	FC
PT.Bostik Indonesia		Indonesia	100.00	FC
Sartomer (Guangzhou) Chemicals Co., Ltd.		China	100.00	FC
Sartomer Distribution (Shanghai) Co., Ltd.		China	100.00	FC
Seki ArkemaCo. Ltd.		South Korea	51.00	FC
Siroflex Inc.		United States	100.00	FC
Siroflex Ltd.		United Kingdom	100.00	FC
Société Marocaine des Colles		Morocco	97.01	FC
Sovereign Chemicals Ltd.		United Kingdom	100.00	FC
Taixing Sunke Chemicals Co., Ltd.		China	55.00	JO
Tamer Endüstriyel Madencilik Anonim Sirketi		Turkey	50.00	FC
The LightLock Company Limited	(d)	Hong Kong	55.00	FC
Turkish Products, Inc.		United States	100.00	FC
Usina Fortaleza Industria E commercio de massa fina Ltda		Brazil	100.00	FC
Vetek SAU		Argentina	100.00	FC
Viking Chemical Company		United States	100.00	FC
Zhuhai Bostik Adhesive Ltd	(c)	China	100.00	FC

NB: FC: full consolidation.
JO: joint operation – consolidated based on shares of assets, liabilities, income and expenses.
JV: joint venture – consolidation by the equity method.
SI: significant influence – consolidation by the equity method.

5.4 COMPANY'S ANNUAL FINANCIAL STATEMENTS

5.4.1 Statutory auditors' report on the financial statements

This is a translation into English of the statutory auditors' report on the financial statements of the Company issued in French and it is provided solely for the convenience of English-speaking users.

This statutory auditors' report includes information required by European regulation and French law, such as information about the appointment of the statutory auditors or verification of the management report and other documents provided to shareholders.

This report should be read in conjunction with, and construed in accordance with, French law and professional auditing standards applicable in France.

KPMG Audit
Département de KPMG S.A.

Tour Eqho
2, avenue Gambetta
92066 Paris-La Défense Cedex
775 726 417 R.C.S. Nanterre

Commissaire aux Comptes
Membre de la Compagnie Régionale de Versailles

Ernst & Young Audit

Tour First
TSA 14444
92037 Paris-La Défense Cedex
S.A.S. à capital variable
344 366 315 R.C.S. Nanterre

Commissaire aux Comptes
Membre de la Compagnie Régionale de Versailles

5

Arkema S.A.

Statutory auditors' report on the financial statements

For the year ended 31 December 2018

To the annual general meeting of Arkema,

Opinion

In compliance with the engagement entrusted to us by your annual general meetings, we have audited the accompanying financial statements of Arkema for the year ended 31 December 2018.

In our opinion, the financial statements give a true and fair view of the assets and liabilities and of the financial position of the Company as at 31 December 2018 and of the results of its operations for the year then ended in accordance with French accounting principles.

The audit opinion expressed above is consistent with our report to the Audit Committee.

Basis for Opinion

Audit Framework

We conducted our audit in accordance with professional standards applicable in France. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Our responsibilities under those standards are further described in the "statutory auditors' Responsibilities for the Audit of the Financial Statements" section of our report.

Independence

We conducted our audit engagement in compliance with independence rules applicable to us, for the period from January 1, 2018 to the date of our report and specifically we did not provide any prohibited non-audit services referred to in Article 5(1) of regulation (EU). No. 537/2014 or in the French Code of Ethics (*Code de déontologie*) for statutory auditors.

Justification of Assessments - Key Audit Matters

In accordance with the requirements of Articles L.823-9 and R.823-7 of the French Commercial Code (*Code de commerce*) relating to the justification of our assessments, we inform you of the key audit matters relating to risks of material misstatement that, in our professional judgment, were of most significance in our audit of the financial statements of the current period, as well as how we addressed those risks.

These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on specific items of the financial statements.

Valuation of investments in the entity Arkema France

Risk identified

As at December 31, 2018, the investments in affiliates recorded in the balance sheet at a net carrying amount of €2,905 million, including investments in the entity Arkema France in the amount of €1,527 million, representing 21% of total assets. Investments in affiliates are recognized in the balance sheet at the lower of acquisition cost or value in use.

As disclosed in Note B1 to the financial statements, value in use of investments held is determined based on the share of equity owned, or, where such methods provide more relevant information, with regard to an external valuation or by reference to discounted future cash flows. In particular, investments in the entity Arkema France are valued using the multiples method applied to the EBITDA of the Company and its subsidiaries, adjusted for net debt within Arkema France.

Estimates of the value in use of these investments require Management's judgement in choosing the information to consider in relation to the investments concerned. Given the weight of investments in the entity Arkema France in the balance sheet and the importance of Management's judgement in determining the assumptions on which estimates of the value in use will be based, we considered the valuation of investments in affiliates to be a key audit matter.

Audit procedures implemented to address the risk identified

In order to assess the reasonable basis of the estimates of the value in use of investments in affiliates, our work consisted primarily in:

- verifying that value in use as estimated by Management is supported by appropriate justification of the valuation method and amounts used;
- verifying the consistency of the valuation method used;
- reconciling the data used in valuing investments in Arkema France (determining the EBITDA multiple used, contribution of EBITDA and net debt within Arkema France) with data from the accounting records, and verifying that adjustments made, if applicable, to these data are based on appropriate documentation;
- verifying the arithmetical accuracy of calculations.

Specific verifications

We have also performed, in accordance with professional standards applicable in France, the specific verifications required by laws and regulations.

Information given in the management report and in the other documents with respect to the financial position and the financial statements provided to the shareholders

We have no matters to report as to the fair presentation and the consistency with the financial statements of the information given in the the Board of Directors' management report and in the other documents with respect to the financial position and the financial statements provided to the shareholders.

We attest the fair presentation and the consistency with the financial statements of the information relating to payment terms, required under Article D.441-4 of the French Commercial Code (*Code de commerce*).

Information relating to corporate governance

We certify the existence, in a section of the Board of Directors' management report relating to Corporate Governance, of the information required by Articles L. 225-37-3 and L. 225-37-4 of the French Commercial Code (*Code de commerce*).

Concerning the information given in accordance with the requirements of Article L. 225-37-3 of the French Commercial Code (*Code de commerce*) relating to remunerations and benefits received by the directors and any other commitments made in their favour, we have verified its consistency with the financial statements, or with the underlying information used to prepare these financial statements and, where applicable, with the information obtained by your Company from controlling and controlled companies. Based on this work, we attest the accuracy and fair presentation of this information.

With respect to the information relating to items that your company considered likely to have an impact in the event of a public purchase offer or exchange, provided pursuant to Article L.225-37-5 of the French Commercial Code, we have agreed these to the source documents communicated to us. Based on our work, we have no observations to make on this information.

Other information

In accordance with French law, we have verified that the required information concerning the purchase of investments and controlling interests and the identity of the shareholders or holders of the voting rights has been properly disclosed in the management report.

Report on Other Legal and Regulatory Requirements

Appointment of the statutory auditors

We were appointed as statutory auditors of Arkema by your annual general meeting held on June 23, 2005 for KPMG Audit, Département de KPMG S.A., and on May 10, 2006 for ERNST & YOUNG Audit.

As at December 31, 2018, KPMG Audit, Département de KPMG S.A., was in the fourteenth year of total uninterrupted engagement (including thirteen years since securities of the Company were admitted to trading on a regulated market) and ERNST & YOUNG Audit in the thirteenth year.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with French accounting principles and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless it is expected to liquidate the Company or to cease operations.

The Audit Committee is responsible for monitoring the financial reporting process and the effectiveness of internal control and risks management systems and where applicable, its internal audit, regarding the accounting and financial reporting procedures.

The financial statements were approved by the Board of Directors.

Statutory auditors responsibilities for the Audit of the Financial Statements

Objectives and audit approach

Our role is to issue a report on the financial statements. Our objective is to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with professional standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As specified in Article L.823-10-1 of the French Commercial Code (*Code de commerce*), our statutory audit does not include assurance on the viability of the Company or the quality of management of the affairs of the Company.

As part of an audit conducted in accordance with professional standards applicable in France, the statutory auditor exercises professional judgment throughout the audit and furthermore:

- identifies and assesses the risks of material misstatement of the financial statements, whether due to fraud or error, designs and performs audit procedures responsive to those risks, and obtains audit evidence considered to be sufficient and appropriate to provide a basis for his opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtains an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the internal control;
- evaluates the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management in the financial statements;
- assesses appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. This assessment is based on the audit evidence obtained up to the date of his audit report. However, future events or conditions may cause the Company to cease to continue as a going concern. If the statutory auditor concludes that a material uncertainty exists, there is a requirement to draw attention in the audit report to the related disclosures in the financial statements or, if such disclosures are not provided or inadequate, to modify the opinion expressed therein;
- evaluates the overall presentation of the financial statements and assesses whether these statements represent the underlying transactions and events in a manner that achieves fair presentation.

Report to the Audit Committee

We submit to the Audit Committee a report which includes in particular a description of the scope of the audit and the audit program implemented, as well as the results of our audit. We also report, if any, significant deficiencies in internal control regarding the accounting and financial reporting procedures that we have identified.

Our report to the Audit Committee includes the risks of material misstatement that, in our professional judgment, were of most significance in the audit of the financial statements of the current period and which are therefore the key audit matters that we are required to describe in this report.

We also provide the Audit Committee with the declaration provided for in Article 6 of regulation (EU) N° 537/2014, confirming our independence within the meaning of the rules applicable in France such as they are set in particular by Articles L.822-10 to L.822-14 of the French Commercial Code (*Code de commerce*) and in the French Code of Ethics (*Code de déontologie*) for statutory auditors. Where appropriate, we discuss with the Audit Committee the risks that may reasonably be thought to bear on our independence, and the related safeguards.

Paris-La Défense, February 26, 2019

The statutory auditors

French original signed by

KPMG Audit

Department of KPMG S.A.

Bertrand Desbarrières
Partner

François Quédiniac
Partner

ERNST & YOUNG Audit

Denis Thibon
Partner

5.4.2 Parent Company financial statements at 31 December 2018

BALANCE SHEET

(In millions of euros)		31/12/2018			31/12/2017
ASSETS	Note	Gross	Depreciation and impairment	Net	Net
Investments	D 1	3,420	515	2,905	2,341
Other financial assets	D 1	2,969	0	2,969	2,968
TOTAL FIXED ASSETS		**6,389**	**515**	**5,874**	**5,309**
Advances		0	0	0	0
Trade receivables	D 2	22	0	22	68
Other receivables	D 2	177	0	177	164
Subsidiary current accounts	D 2	1,266	0	1,266	1,469
Treasury shares	D 2	28	0	28	2
Cash and cash equivalents		0	0	-	0
TOTAL CURRENT ASSETS		**1,493**	**0**	**1,493**	**1,703**
Bond premium and issuing costs	D 2	19	0	19	22
Prepaid expenses					
TOTAL ASSETS		**7,901**	**515**	**7,386**	**7,034**

LIABILITIES AND SHAREHOLDERS' EQUITY	Note	31/12/2018	31/12/2017
Share capital		766	759
Paid-in surplus		1,263	1,216
Legal reserve		100	76
Retained earnings		1,549	1,264
Net income for the year		522	485
TOTAL SHAREHOLDERS' EQUITY	D 3	**4,200**	**3,800**
ADDITIONAL EQUITY	D 4	**700**	**700**
PROVISIONS	D 5	**62**	**67**
Bonds and other financial debt	D 6	2,273	2,274
Subsidiary current accounts	D 8		
Trade payables	D 8	11	55
Tax and employee-related liabilities	D 8	8	13
Other payables	D 8	132	125
TOTAL LIABILITIES		**2,424**	**2,467**
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY		**7,386**	**7,034**

INCOME STATEMENT

(In millions of euros)	Note	2018	2017
Services billed to related companies		86	66
Other purchases and external expenses		(64)	(60)
Taxes other than income taxes		(2)	(1)
Personnel expenses		(18)	(16)
Other operating expenses		(0)	(0)
Increases and reversals from provisions	D 5	(0)	0
Operating income		**1**	**(11)**
Dividends from investments		0	59
Interest income		88	100
Interest expenses		(82)	(93)
Net foreign exchange gains (losses)		(0)	0
Impairment of investments		500	500
Increases and reversals of provisions for financial risks	D 5	(3)	(3)
Financial result	D 10	**503**	**563**
Income before tax and exceptional items		**504**	**552**
Increases and reversals from exceptional provisions	D 5	5	(19)
Other exceptional income		8	5
Income and (expenses) on capital transactions		(13)	(1)
Exceptional items		**1**	**(15)**
Income taxes	D 11	18	(51)
Net income		**522**	**485**

CASH FLOW STATEMENT

(In millions of euros)	2018	2017
Net income	522	485
Changes in provisions	(502)	(477)
Changes in impairment		
(Gains)/losses on sales of assets		
Gross operating cash flow	**20**	**8**
Change in working capital	(35)	8
Cash flow from operating activities	**(15)**	**16**
Cost of acquisition of investments	(64)	0
Change in loans	(1)	(405)
Sale of investments	0	0
Cash flow from investing activities	**(65)**	**(405)**
Increase in bonds	(2)	405
Increase in Additional equity	0	0
Change in share capital and other equity	54	6
Dividends paid to shareholders	(176)	(155)
Cash flow from financing activities	**(123)**	**256**
Change in net cash	**(203)**	**(133)**
Net cash at beginning of period*	1,469	1,602
Net cash at end of period*	1,266	1,469

* *Including subsidiary current accounts.*

TABLE OF SUBSIDIARIES AND INVESTMENTS AT 31/12/2018

Subsidiaries and investments	Share capital *(in € m)*	Shareholders' equity other than capital, excluding net income *(in € m)*	Gross value of shares owned *(in € m)*	Net carrying amount of shares owned *(in € m)*	Number of shares owned	Ownership interest *(%)*	Loans, advances & current accounts - gross value *(in € m)*	Guarantees given by the company *(in € m)*	Sales (excl taxes) for 2018 [(1)] *(in € m)*	Net income for 2018 *(in € m)*	Dividends received by the company *(in € m)*
French subsidiaries											
Arkema France 420, rue d'Estienne d'Orves 92705 Colombes Cedex	270	587	2,023	1,527	1,584,247	100.00	4,195.93	1,037	3,160	72	-
Arkema Amériques SAS 420, rue d'Estienne d'Orves 92705 Colombes Cedex	1,049	327	1,057	1,057	104,918,729	100.00	-	-	-	120	-
Arkema Europe SA 420, rue d'Estienne d'Orves 92705 Colombes Cedex	548	112	188	188	12,370,920	34.32	-		-	10	-
Arkema Asie SAS 420, rue d'Estienne d'Orves 92705 Colombes Cedex	120	(7)	122	122	66,360	100.00	-	-	-	(7)	-
Arkema Afrique SAS 420, rue d'Estienne d'Orves 92705 Colombes Cedex	30	(19)	30	11	300,370	100.00	-	-	-	1	-
TOTAL INVESTMENTS			**3,420**	**2,905**			**4,196**	**1,037**	**3,160**	**195**	**0**

(1) Financial statements not yet approved by the shareholders at the general meeting.

5.4.3 Notes to the Company's financial statements at 31 December 2018

A. Highlights

- In April 2018, Arkema carried out its sixth capital increase reserved for employees. 610,405 shares were subscribed at the price of €81.97 per share, giving a total amount of €50 million.
- On 18 May 2018 the combined general meeting of Arkema's shareholders approved the distribution of a €2.30 dividend per share in respect of the 2017 financial year.
- Arkema acquired the shares of Arkema Asia and Arkema Amériques owned by Arkema France, for the total sum of €64 million.

B. Accounting policies

The annual financial statements of Arkema S.A. were prepared under the responsibility of the Chairman and CEO of Arkema S.A. and were approved by the Board of Directors on 26 February 2019.

The annual financial statements of Arkema S.A. have been prepared in accordance with French laws and regulations. It is specified that the presentation of the balance sheet and the income statement have been adapted to the holding activity exercised by the Company.

The usual French accounting conventions have been applied, in compliance with the conservatism principle, under the following basic assumptions:

- going concern;
- consistency of accounting policies from one financial year to the next; and
- accruals basis of accounting and cut-off.

The basic method used to value items recorded in the accounting records is the historical cost method.

The main accounting policies used by the Company are presented below.

1) INVESTMENTS

Investments are stated at the lower of acquisition cost and value in use. Investment acquisition expenses are recognized in the income statement as incurred.

The value in use of the investments held by Arkema S.A. is assessed by reference to the share held in the investee's net assets. However, value in use may be assessed:

- by reference to an external valuation; or
- by standard valuation methods (multiples, discounted future cash flows) when these methods provide more relevant information than the share held in the investee's net assets.

In particular, the value of the investment in Arkema France is assessed by the multiples method applied to the EBITDA of the company and its subsidiaries, adjusted for the net debt of Arkema France. The multiple of EBITDA used is established by reference to Arkema S.A.'s market capitalization, after corrections relating to certain specificities of Arkema France to take into consideration the operational activities and geographical markets concerned by the entity's operations.

2) COSTS OF CAPITAL INCREASES

In accordance with opinion 2000D of the urgent issues committee of the French National Accounting Board (*Conseil National de la Comptabilité* - CNC), issued on 21 December 2000, the Company opted to recognize the costs of capital increases as a deduction from issue premiums.

3) RECEIVABLES

Receivables are recognized at their nominal value. A bad debt provision is recognized when the net realizable value is lower than the book value. Receivables denominated in foreign currencies are translated at the exchange rate at 31 December.

4) TREASURY SHARES

Treasury shares held by Arkema S.A. are recognized at acquisition cost in current assets. They are valued in accordance with the FIFO (first-in first-out) method. Treasury shares are normally written down, if necessary, on the basis of the average market price on the Paris stock exchange for the last month preceding the balance sheet date. By exception, and in accordance with opinion n°2008-17 of the CNC issued on 6 November 2008, these shares are not written down on the basis of their market value when they have been allocated to a plan, because of the commitment to make grants to employees and the provision recognized in this respect in liabilities.

Treasury shares initially allocated to cover share grants to employees are reclassified as financial fixed assets in a "Treasury shares for cancellation" sub-account when a decision is taken to cancel the shares. They are then recorded at their net carrying amount at the date on which their allocation is changed.

5) BONDS

Bonds are recognized at nominal value in the balance sheet liabilities.

Bond issuing costs and bond premiums (arising when the bond is issued at a price below its nominal value) are recognized in the balance sheet as a separate asset. However, if the bond is issued at a price higher than the nominal value, the difference between the issue price and the nominal value minus issuing costs is recognized as a liability under the heading *Bonds*.

Issuing costs comprise bank charges for setting up the bond and legal fees. They are spread over the duration of the bond under the effective interest rate method, with the corresponding expense recognized in operating income.

The bond premium is also spread over the duration of the bond under the effective interest rate method, with the corresponding expense recognized in financial result. If the bond is issued at a price higher than the nominal value, the same method is applied to the difference between the issue price and the nominal value, with the corresponding income recognized in financial result.

The effective interest rate corresponds to the interest rate which, when used to determine the discounted value of expected cash outflows till maturity date, leads to the initial book value of the bond

6) PERPETUAL HYBRID BONDS

Perpetual bonds whose redemption remains under the exclusive control of the issuer are recorded as "Additional equity".

Costs and the premium related to issuance of such instruments are recorded in the balance sheet assets as prepaid expenses, and will be spread over the duration of the relevant tranche.

The expense resulting from spreading issuing costs is recognized in the operating income by a direct credit to the bond issuing cost account (only the net amount is shown in the balance sheet).

The expense resulting from spreading issue premiums is recognized in financial expenses by a direct credit to the bond issue premium account (only the net amount of the premiums is shown in the balance sheet).

Accrued interest not yet due is included in Debt.

The annual interest expense on these instruments is included in financial expenses in the income statement.

7) STOCK OPTIONS AND FREE SHARE GRANTS

7.1 Stock options

Stock options are accounted for, at the date of exercise, as a capital increase for an amount corresponding to the subscription price paid by the stock option holders. Any difference between the subscription price and the nominal value of the shares created represents an issue premium.

7.2 Free share grants

Arkema S.A. shares will be definitively granted to beneficiaries at the end of a vesting period subject to the beneficiary remaining with the company and any performance conditions set by the Board of Directors.

7.2.1 Issue of new shares

When a free share grant is carried out by issuing new shares, the capital increase by means of a transfer from reserves of the nominal amount of the shares created is recognized in the financial statements at the end of the defined vesting period.

7.2.2 Buybacks of existing shares

When a free share grant is carried out through buybacks of existing shares (following a decision taken by the Board of Directors in relation to the plan in question), a provision representing the obligation to deliver the shares is recognized at year-end. The amount of this provision is equal to the probable purchase price, valued on the basis of the closing share price if the shares have not yet been purchased, or the net carrying amount of the treasury shares if they have already been purchased. On delivery at the end of the vesting period, the purchase price paid by the Company for the shares granted is recognized in exceptional expenses and the provision previously recorded is reversed. However, the expense related to delivery of definitively granted shares to Arkema S.A. personnel under performance share plans is reclassified from exceptional items to operating income.

The provision is recognized on a time-proportion basis over the vesting period and takes into account, where relevant, the probability of remaining with the company and fulfilling the performance conditions set by the Board of Directors.

7.3 Social security tax on stock options and free share grants

The 2008 French social security financing act (law 2007-1786 of 19 December 2007) created a new employer contribution on stock options and free share grants. This contribution is payable to the mandatory health insurance schemes to which the beneficiaries are affiliated.

For stock options, the contribution is calculated, at the company's choice, on the basis of either (i) the fair value of the options as estimated in the consolidated financial statements or (ii) 25% of the value of the shares to which these options relate at the date of the Board of Directors' decision to grant them.

For free share grants, starting from the 2016 plan, the contribution is calculated on the basis of the value of the shares granted at their vesting date, and is payable the month after the shares vest to the beneficiary. The provision for expenses corresponding to the contribution payable for Arkema S.A. personnel is established progressively over the vesting period.

8) PENSION AND SIMILAR BENEFIT OBLIGATIONS

The complementary "top-hat" defined benefit pension plan was terminated during 2016 following a decision by the Board of Directors on 9 March 2016. Other non-pension benefits (lump sum payments on retirement, long service awards, death and disability benefits, contributions to healthcare bodies) remain unchanged, and provisions are recognized in respect of these obligations in the financial statements.

The amount of the provision corresponds to the actuarial value of employees' vested rights at the balance sheet date.

The valuation of obligations under the projected unit credit method principally takes into account:

- a discount rate which depends on the duration of the obligations (1.95% at 31/12/2018 and 31/12/2017);
- an assumption concerning the date of retirement;
- an inflation rate;
- assumptions in respect of future increases in salaries, rates of employee turnover and increases in health costs.

Actuarial gains and losses are fully recognized in the income statement.

9) TAX CONSOLIDATION

The tax consolidation agreements signed between Arkema S.A. and the other companies in the tax consolidation group refer to a neutrality principle in accordance with which each tax consolidated subsidiary must recognize in its own financial statements, during the entire period of its inclusion in the tax consolidation group, a tax expense (or income) corresponding to income tax and additional levies, identical to that which it would have recognized had it not formed part of the tax consolidation group.

In its accounting records, Arkema S.A. recognizes:

- in "other receivables", with an offsetting entry to income taxes, the amount of income taxes due by profitable companies in the tax consolidation group;
- in "other payables", with an offsetting entry to income taxes, the amount of taxes due by the tax consolidation group.

The tax consolidation agreements also state that Arkema S.A. will benefit from the tax savings generated by the use of its subsidiaries' tax losses without any obligation to refund them (even if the said subsidiaries leave the tax consolidation group). On this basis, in accordance with opinion 2005-G of the urgent issues committee of the CNC, Arkema S.A. does not recognize any provision for taxes.

C. Subsequent events

None.

D. Notes to the parent company financial statements

The figures presented in the notes to the parent company financial statements are expressed in millions of euros (unless otherwise indicated).

NOTE 1 | Investments and other financial assets

1.1 INVESTMENTS

(In millions of euros)	31/12/2017	Increase	Decrease	31/12/2018
Gross value	3,356	64	-	3,420
Impairment	(1,015)		(500)	(515)
NET VALUE	**2,341**	**64**	**(500)**	**2,905**

The change in investments results from the reversal of €500 million of impairment in respect of shares in Arkema France, in view of the company's improved prospects and the purchase from Arkema France of the shares of Arkema Amériques (0.54%) and Arkema Asie (40.6%) that were not yet owned by Arkema S.A.

1.2 OTHER FINANCIAL ASSETS

Arkema S.A. has transferred to its subsidiary Arkema France the cash received from the various bond issues (see notes D4 and D6), in the form of loans with the same maturity and same effective interest rates.

The corresponding loans total €2,930 million (excluding accrued interest) at 31 December 2018.

NOTE 2 | Current assets

2.1 BREAKDOWN OF RECEIVABLES

The breakdown by maturity of the Company's receivables at 31 December 2018 is as follows:

(In millions of euros)	Gross amount	Maturing within 1 year	Maturing after 1 year
Operating receivables and VAT [1]	22	22	-
Cash advances to subsidiaries [2]	1,266	1,266	-
Other receivables [3]	177	95	82
TOTAL	**1,465**	**1,383**	**82**

(1) Since 2018, Arkema S.A.has invoiced support functions to all Arkema Group entities.
(2) Arkema France current account.
(3) Mainly income tax receivables and intra-group receivables.

2.2 TREASURY SHARES

At 31 December 2018, Arkema S.A. owns 318,998 treasury shares which are recorded at the total value of €28 million. These shares are allocated to the free share grant plans (see note D13).

No impairment was therefore recognized in the financial statements at 31 December 2018.

2.3 BOND PREMIUMS AND COSTS

The following amounts are recognized in this item:

(In millions of euros)	31/12/2017	Increase	Decrease	31/12/2018
Bonds				
Issue premiums	14.6	-	1.6 [1]	13.0
Issuing costs	2.8	-	0.4 [1]	2.4
SUBTOTAL	**17.4**	**-**	**2.0**	**15.4**
Perpetual hybrid bonds				
Issue premiums	3.6		1.2 [1]	2.4
Issuing costs	1.4		0.5[1]	0.9
SUBTOTAL	**5.0**	**-**	**1.7**	**3.3**
TOTAL	**22.4**	**-**	**3.7**	**18.7**

(1) Amount charged to expenses for the period.

NOTE 3 | Shareholders' equity

At 31 December 2018, the share capital is composed of 76,581,492 shares with a nominal value of 10 euros, compared to 75,870,506 shares with a nominal value of 10 euros at 31 December 2017.

Changes in shareholders' equity are as follows:

In millions of euros	Opening balance at 01/01/2018	Appropriation of 2017 net income	Distribution of dividends (1)	2018 net income	Capital increase reserved for employees (2)	Capital increase due to subscriptions (3)	31/12/2018 before appropriation
Share capital	758.7				6.1	1.0	765.8
Issue premium	465.7				43.2	4.0	512.9
Paid-in surplus	625.9						625.9
Merger surplus	124.8						124.8
Legal reserve	75.7	24.3					100.0
Other reserves	0						0
Retained earnings	1,263.7	460.7	(175.8)				1,548.6
2017 net income	485.0	(485.0)					0
2018 net income		-		521.9			521.9
TOTAL SHAREHOLDERS' EQUITY	**3,799.5**	**0**	**(175.8)**	**521.9**	**49.3**	**5.0**	**4,200.0**

(1) On 18 May 2018 the shareholders' general meeting adopted a resolution proposing to distribute a dividend of €2.30 per share, or a total amount of €175.8 million, in respect of the 2017 financial year.

(2) On 25 April 2018 Arkema S.A. undertook a capital increase reserved for employees: 610,405 shares were subscribed at the price of €81.97 per share. This price corresponds to the average opening price of the Arkema share quoted on the Paris stock exchange in the 20 trading days prior to the Chairman and CEO's decision of 6 March 2018 setting the terms of the capital increase, minus a 20% discount. On completion of this operation, Arkema S.A. recognised a capital increase of €6.1 million and an issue premium, net of expenses, of €43.2 million.

(3) Capital increases resulting from the exercise of stock options in 2018.

On 30 June 2018, Arkema S.A. undertook a capital increase of €0.5 million with a €1.3 million increase in the issue premium, following the exercise of stock options between 1 January and 30 June 2018.

On 31 December 2018, the Company undertook a capital increase of €0.5 million with a €2.7 million increase in the issue premium, following the exercise of stock options between 1 July and 31 December 2018.

Following completion of these operations, the share capital of Arkema S.A. was increased to €765.8 million divided into 76,581,492 shares.

NOTE 4 | Additional Equity

(In millions of euros)	Gross amount	Maturing within 1 year	Maturing after 1 year
Issuance of perpetual hybrid bonds	700		700

As part of the refinancing of its acquisition of Bostik, Arkema S.A. issued a perpetual hybrid bond in October 2014 in the total amount of €700 million with an issue premium and issuing costs (see Note 2.3). These bonds include a first call option on 29 October 2020 and will carry an annual coupon of 4.75% until that date. The coupon will then be reset every 5 years.

At each coupon date, the interest can be paid or carried over at the issuer's convenience. Coupons carried over generate late payment interest and become due in the event of certain contractually defined circumstances under the control of the issuer. The coupon of €33 million was paid in full on 31 October 2018.

NOTE 5 | Provisions

Changes in provisions recognized in the Company's balance sheet are set out in the table below:

(In millions of euros)	31/12/2017	Increase	Decrease	31/12/2018
Provisions for pensions and similar benefits [(1)]	2.1	0.2	0.5	1.8
Provisions for long service awards	0.4	-	-	0.4
Provision for free share grants [(2)]	62.1	21.7	24.5 [(3)]	59.3
Provisions for risks related to subsidiaries	-	-	-	
Provisions for other risks	2.8		2.7	0.1
TOTAL	**67.4**	**21.9**	**27.7**	**61.6**

(1) The increase mainly corresponds to entitlements earned over the year.
(2) Increases and reversals from these provisions are recorded in exceptional items.
(3) The decrease corresponds to a reversal following delivery of shares under the 2nd tranche of plan 2016-3 and the 2014 plans.

These movements break down as follows:

Recognized in operating income	0.2	(0.5)
Recognized in financial result	0	0
Recognized in exceptional items	21.7	(27.2)
TOTAL	**21.9**	**(27.7)**

NOTE 6 | Bonds and other financial debt

This heading covers:

- the bond issued in April 2012 that will mature on 30 April 2020, with fixed coupon of 3.85% and the tap issue undertaken in October 2012 bringing its total amount to €480 million;
- the €150 million bond issued in December 2013 with fixed coupon of 3.125% that will mature on 6 December 2023;
- the €700 million bond issued in January 2015 with fixed coupon of 1.5%, that will mature on 20 January 2025;
- the bond issued in April 2017 that will mature on 20 April 2027 with fixed coupon of 1.5%, and the tap issue undertaken in June 2017 bringing its total amount to €900 million.

  These last three issues are part of the Company's €3 billion Euro Medium Term Notes (EMTN) programme introduced in October 2013;
- the difference between the issue price and the nominal value of the 2012 bond, initially recognized in liabilities at the amount of €13.7 million (net of issuing costs); after a €1.9 million charge to the period, the balance of this difference amounts to €2.6 million at 31 December 2018;
- the difference between the issue price and the nominal value of the 2017 bond, recorded in liabilities at the amount of €2.2 million (net of issuing costs); after a €0.2 million charge to the period, the balance of this difference amounts to €1.9 million at 31 December 2018;
- the accrued interest on bonds, amounting to €32.2 million;
- the accrued interest on the perpetual hybrid bond, amounting to €5.8 million.

NOTE 7 Negotiable European Commercial Paper

In April 2013 the Group introduced a Negotiable European Commercial Paper programme with a ceiling of €1 billion.

Issues outstanding as part of this programme amount to nil at 31 December 2018.

NOTE 8 Debt

The breakdown by maturity of the Company's debt at 31 December 2018 is as follows:

(In millions of euros)	Gross amount	Maturing within 1 year	Maturing in 1 to 5 years	Maturing after 5 years
Bonds and other financial debt	2,273	43 [1]	630 [2]	1,600 [2]
Trade payables	11	11	-	-
Tax and employee-related liabilities	8	8	-	-
Other payables	132 [3]	71	61	-
TOTAL	**2,424**	**132**	**691**	**1,600**

(1) Accrued interest on bonds and the perpetual hybrid bond.
(2) Long-term bonds issued by Arkema S.A. (see note D6).
(3) Income tax payables owed to companies in the tax consolidation group.

NOTE 9 Details of items concerning related companies

(In millions of euros)	
Investments	
Investments in other companies	2,905
Receivables related to subsidiaries	2,969
Receivables	
Trade receivables	22
Other receivables (current account)	1,266
Other amounts receivable	50
Liabilities	
Financial debt	-
Trade payables	10
Other payables	119
Sales	
Services billed to related companies	86
Financial income and expenses	
Dividends from investments	-
Income on loans and current accounts	82

NOTE 10 | Financial result

Interest income corresponds to the remuneration of the amounts made available to Arkema France in the context of the Group's cash pooling system.

NOTE 11 | Income taxes

In 2018, application of the French tax consolidation system resulted in tax income (negative expense) of €17.6 million for Arkema S.A.

This tax income consists of:

- income of €31 million corresponding to the tax paid by subsidiaries included in the tax consolidation group as if they were taxed separately;
- an expense of €13.4 million corresponding to the tax charge payable by the tax consolidation group.

NOTE 12 | Deferred tax position

Temporarily non-deductible expenses relating to provisions for pensions and similar benefits at 31 December 2018 amount to €1.8 million, down by €0.3 million from 31 December 2017.

After utilisation of €40 million corresponding to the 2018 taxable income under the French tax consolidation system, the tax loss carry-forward of the Company's tax consolidation group at 31 December 2018 amounts to €1,483 million, and can be used indefinitely.

NOTE 13 | Stock option plans and free share grants

STOCK OPTIONS

The Board of Directors has decided not to introduce any further stock option plans.

Movements in the stock option plans granted in previous years and still outstanding at 31 December 2018 are as follows:

Plan	Total number of options granted*	Exercise price (€)*	Number of options exercised in 2018	Number of options cancelled in 2018	Total number of options exercised	Total number of options outstanding	Final year for exercising options
2010-1	230,044	29.33	21,290	1,559	221,485	-	2018
2010-2	233,513	29.33	22,555	1,465	209,874	-	2018
2011-1	109,082	65.92	17,178	-	99,082	10,000	2019
2011-2	109,082	65.92	39,558	-	76,354	32,728	2019

* *After adjustment following the capital increase with preferential subscription rights of November 2014.*

FREE SHARE GRANTS

On 5 November 2018, the Board of Directors decided to put in place two performance share plans for the benefit of Group employees, particularly employees with responsibilities whose exercise influences the Group's results.

Movements in the free share grant plans existing at 31 December 2018 are as follows:

Plan	Grant date	Vesting period	Conservation period	Total number of free shares granted	Number subject to performance conditions	Number of shares definitively granted in 2018	Number of shares cancelled in 2018	Total number of shares still to be granted at 31/12/2018
2014-1, 3	6 May 2014	3-4 years	0-3 years	**17,118**	-	11,865	1,279	-
2014-2	13 Nov 2014	4 years	-	**275,000**	203,535	243,337	25,688	-
2015-1	9 Nov 2015	4 years	-	**285,525**	285,525	-	5,410	**274,415**
2015-2	9 Nov 2015	4 years	-	**59,595**	-	-	2,620	**55,315**
2016-1, 2	10 May 2016	3-4 years	0-3 years	**43,278**	-	-	-	**43,278**
2016-3	7 Jun 2016	1-3 years	2 years	**50,000**	-	16,667	-	**16,666**
2016-4	9 Nov 2016	3 years	2 years	**235,835** (1)	226,040	-	2,450	**231,035**
2016-5	9 Nov 2016	4 years	-	**122,080** (2)	112,860	-	4,875	**116,745**
2017-1	8 Nov 2017	3 years	2 years	**230,695** (3)	218,255	-	440	**230,235**
2017-2	8 Nov 2017	4 years	-	**129,405** (4)	114,845	-	3,810	**125,405**
2018-1,2	2 May 2018		0-3 years	**41,137**			15	**41,122**
2018-3	5 Nov 2018		2 years	**231,820** (5)	217,570			**231,820**
2018-4	5 Nov 2018			**127,665** (6)	111,235			**127,665**

(1) May be raised to 258,439 in the event of high performance.
(2) May be raised to 133,366 in the event of high performance.
(3) May be raised to 252,521 in the event of high performance.
(4) May be raised to 140,890 in the event of high performance.
(5) May be raised to 254,011 in the event of high performance.
(6) May be raised to 139,261 in the event of high performance.

INCOME AND EXPENSES IN THE FINANCIAL YEAR IN RESPECT OF THE 2014 TO 2018 PLANS

The delivery of shares in respect of the 2nd tranche of plan 2016-3 and the 2014 plans led to recognition in the 2018 exceptional items of a net expense of €3.1 million (€27.5 million exceptional expense offset by a €24.4 million reversal from provisions).

The provision for free share grants was increased by €21.7 million (of which €2 million relates to the 2018 plans).

The total amount of provisions in respect of all plans is €59.3 million at 31 December 2018.

NOTE 14 | Off-balance sheet commitments

The information set out below concerns Arkema S.A. or certain of its subsidiaries, and is disclosed on account of Arkema S.A.'s holding company status.

Commitments given

Syndicated credit facility

On 29 October 2014, Arkema France and its parent company Arkema S.A., which also acted as guarantor for its subsidiary, put in place a multi-currency syndicated credit facility of €900 million, with an initial duration of five years maturing on 29 October 2019, and the possibility of two one-year extensions subject to approval by the lenders, exercisable at the end of the first and the second year. After an initial one-year extension in 2015, on 9 September 2016 Arkema France and Arkema S.A. were authorized by their lenders to extend this maturity to 29 October 2021. This credit facility is intended to finance the Group's general requirements as a substitute line for the Negotiable European Commercial Paper programme, and includes an early repayment clause in the event of certain situations including a change in control of the Arkema Group. It includes: (i) standard information undertakings and commitments for this type of financing, (ii) a financial undertaking by the Arkema Group to maintain the ratio of consolidated net debt to consolidated EBITDA (tested twice a year) at 3.5 or less.

NOTE 15 | Liabilities and contingent liabilities

As a result of Hurricane Harvey, Arkema's Crosby, Texas plant experienced unprecedented flooding leading to a loss of power, the loss of back up refrigeration, the decomposition of certain organic peroxides products that require refrigeration and, ultimately, a series of fires at the plant. Floodwaters also caused wastewater releases. Since September 2017, five civil lawsuits have been filed against Arkema Inc., including one in which Arkema S.A. is also a named defendant. At this time, Arkema S.A. has not been officially notified and cannot estimate the potential losses resulting from this lawsuit. If Arkema S.A. is officially notified, it will vigorously defend the case.

NOTE 16 | Employees

The average number of employees by category of personnel is as follows:

Engineers and managerial	8
Supervisors and technicians	0
TOTAL	**8**

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NOTE 17 | Transactions with related parties

The compensation of directors and members of its Executive Committee (Comex) recognized in expenses by Arkema S.A. is as follows:

(In millions of euros)	2018	2017
Salaries and other short-term benefits	8	7
Pensions, other post-employment benefits and contract termination benefits	-	-
Other long-term benefits	-	-
Share-based payments [1]	6	4

(1) This amount includes the shares awarded to the Chairman and CEO in compensation for rights earned under the complementary pension plan which was terminated on 9 March 2016 by decision of the Board of Directors.

Salaries and other short-term benefits comprise all types of remuneration recorded, including variable amounts, bonuses, attendance fees and benefits in kind.

The Chairman and CEO is entitled to a contractual indemnity in the event of non-voluntary departure, up to a maximum of two years' total gross compensation (fixed and variable), subject to achievement of performance criteria.

Other transactions with related parties involve subsidiaries directly or indirectly wholly-owned by Arkema S.A. and do not fall within the scope of the article 831-3 of regulation n° 2014-03 of 5 June 2014 of the French National Accounting Authority (*Autorité des normes comptables*).

5.4.4 Information on the Company's payment terms (articles L. 441-6-1 and D. 441-4 of the French Commercial Code)

The following table shows the number and total amount of supplier invoices received, due and not yet settled at 31 December 2018:

	Article D. 441 I-1°: invoices received and overdue at the year-end					
k€	0 day (indicative)	1-30 days	31-60 days	61-90 days	91 days and more	Total (1 day and more)
(A) Period overdue						
Number of invoices concerned	0					
Total amount of invoices concerned	0	0	0	0	0	0
Percentage of annual sales (excluding taxes)	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
(B) Invoices excluded from (A) relating to disputed or unrecognized receivables and payables						
Number of invoices excluded	0	0	0	0		0
Total amount of invoices excluded	0	0	0	0		0
(C) Standard payment terms (contractual or by law)						
Payment terms used to calculate overdue payments						

The following table shows the number and total amount of customer invoices issued, due and not yet settled at 31 December 2018:

	Article D. 441 I-1°: invoices issued and overdue at the year-end					
k€	0 day (indicative)	1-30 days	31-60 days	61-90 days	91 days and more	Total (1 day and more)
(A) Period overdue						
Number of invoices concerned	-					50
Total amount of invoices concerned	-	21,369	-	-	2	21,371
Percentage of annual sales		24.97%			0.01%	24.98%
(B) Invoices excluded from (A) relating to disputed or unrecognized receivables and payables						
Number of invoices excluded	0	0	0	0	0	0
Total amount of invoices excluded	0	0	0	0	0	0
(C) Standard payment terms (contractual or by law)						
Payment terms used to calculate overdue payments	Contractual terms specified in the order					

5.4.5 Results of the Company in the last five years (Articles R.225-81, R.225-83 and R.225-102 of the French Commercial Code)

In millions of euros (unless otherwise indicated)	2014	2015	2016	2017	2018
Type of disclosures					
I - Financial position at year end					
a) Share capital	728	745	757	759	766
b) Number of shares issued	72,822,695	74,472,101	75,717,947	75,870,506	76,581,492
II - Operations and results					
a) Sales (excluding taxes)	15	18	19	66	86
b) Income before tax, depreciation, impairment and provisions	70	703	528	60	2
c) Income taxes	28	52	89	(51)	18
d) Employee profit sharing					
e) Income after tax, depreciation, impairment and provisions	189	754	767	485	522
f) Amount of dividends distributed	135	143	155	176	NC
III - Earnings per share (in euros)					
a) Income after tax but before depreciation, impairment and provisions	1.34	10.14	8.15	0.12	0.26
b) Income after tax, depreciation, impairment and provisions	2.59	10.12	10.13	6.39	6.82
c) Net dividend per share	1.85	1.90	2.05	2.30	NC
IV - Employee data					
a) Number of employees	7	7	9	9	8
b) Total payroll	5	7	8	7	8
c) Amounts paid to employee benefit bodies in the year	3	4	5	4	6

INFORMATION ABOUT THE COMPANY AND ITS SHARE CAPITAL

6

The different parts constituting the annual financial report are identified in the table of contents by the pictogram AFR

6.1 LEGAL PRESENTATION OF THE GROUP

6.1.1 Information about the Company

Arkema was established in October 2004 within Total's Chemical business to bring together the Vinyl Products, Industrial Chemicals and Performance Products businesses. On 18 May 2006, the Company's stock market listing marked the Group's independence.

Since 2006, a number of significant operations, as mentioned below, have enabled the Group to strengthen its portfolio of businesses and to refocus on specialty chemical activities.

Dates	Nature of operation	Company	Businesses	Division
October 2007	Acquisition	Coatex	Rheology additives	Coating Solutions
January 2010	Acquisition	Certain assets of The Dow Chemical Company in North America	Acrylics and emulsions	Coating Solutions
July 2011	Acquisition	Cray Valley, Cook Composites & Polymers Sartomer	Coating resins Photocure resins	Coating Solutions High Performance Materials
February 2012	Acquisition	Suzhou Hipro Polymers Co. Ltd.	Specialty polyamides	High Performance Materials
July 2012	Divestment	Vinyl Products division	Vinyls	Vinyl Products
October 2014	Joint venture	Taixing Sunke Chemicals	Acrylics	Coating Solutions
February 2015	Acquisition	Bostik	Adhesives	High Performance Materials
December 2016	Acquisition	Den Braven	High performance sealants	High Performance Materials
January 2018	Acquisition	XL Brands	Adhesives	High Performance Materials

Arkema is a French joint stock corporation (*société anonyme*) with a share capital of €765,814,920, and its registered office is located at 420, rue d'Estienne d'Orves, 92700 Colombes (telephone: +33 1 49 00 80 80). It is governed by French law and, as a result, is subject to the legislative and regulatory provisions of the French Commercial Code (*Code de commerce*).

The Company is registered with the Nanterre Trade and Companies Registry (*Registre du commerce et des sociétés*) under number 445 074 685. Its SIRET number is 445 074 685 00030. Its NAF code is 6420 Z.

The Company was incorporated on 31 January 2003 for a fixed period of 99 years from its date of registration at the Trade and Companies Registry, until 31 January 2102, unless the term is extended or the Company is wound up earlier.

The Company's corporate purpose (article 3 of its Articles of Association), directly or indirectly, in any country is:

- to carry out all operations directly or indirectly relating to research, production, processing, distribution and marketing of all chemical and plastic products and their derivatives, by-products thereof and of all parachemical products;
- to acquire, hold and manage all securities, negotiable or otherwise, in French and foreign companies, through newly-created companies, contributions, limited partnerships, or by subscribing for or purchasing securities or corporate rights, or through mergers, combinations, joint venture companies, or by obtaining the use of or providing any property or rights under a lease or lease management agreement or otherwise; and
- more generally, to enter into all financial, commercial, industrial, real estate or securities transactions that may be directly or indirectly related to any of the purposes referred to above or to any other similar or connected purposes, and designed to promote the Company's purpose, expansion or development.

The Company's Articles of Association, minutes of general meetings, statutory auditors' reports and other Company documents may be consulted at the Group's Legal department at the registered office located at 420, rue d'Estienne d'Orves, 92700 Colombes, France. Furthermore, historical financial information, regulated information, reference documents, annual and sustainable development reports and others are available on the Company's website: www.arkema.com.

6.1.2 Subsidiaries and shareholdings of the Company

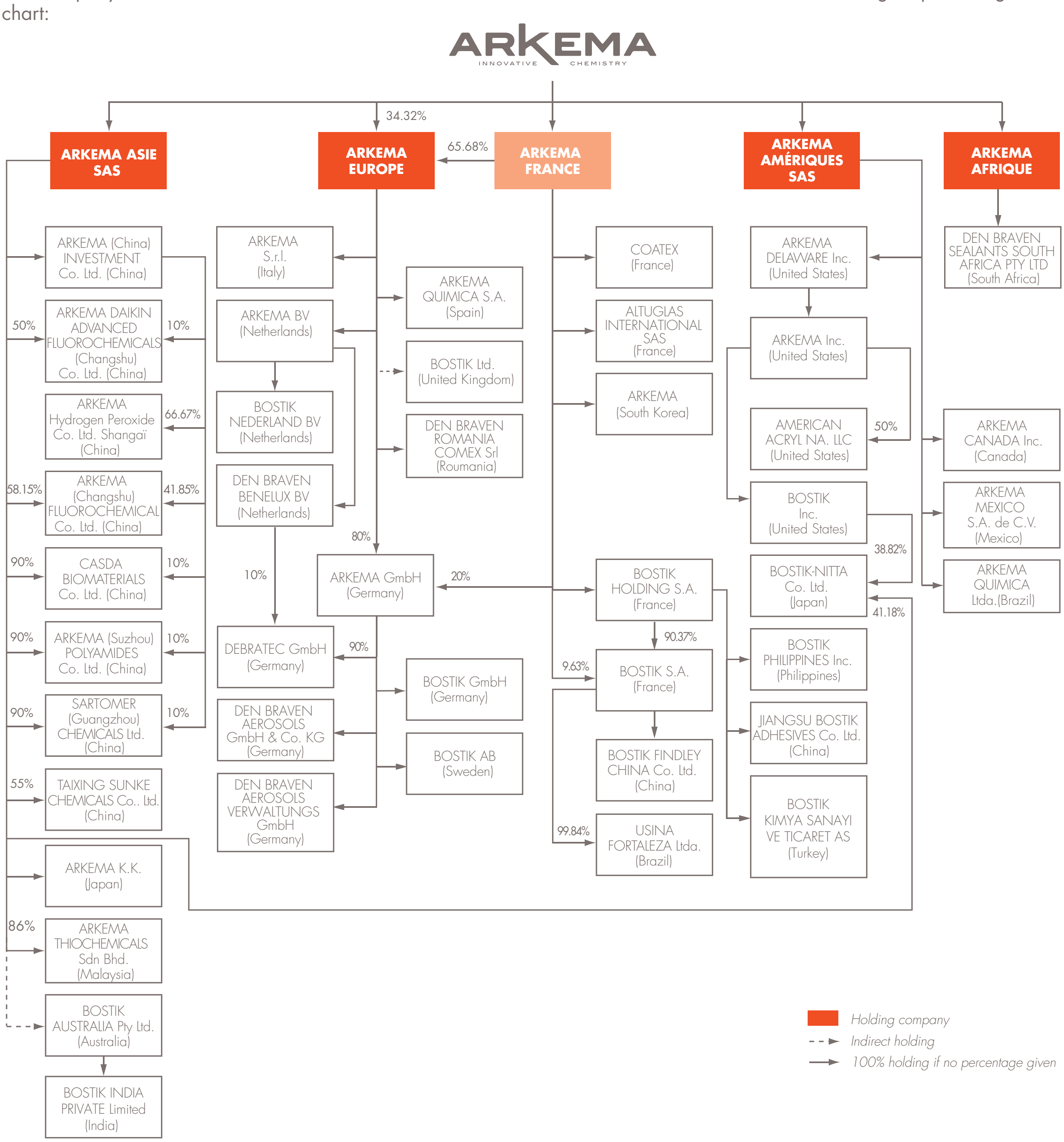
The Company is the Group's ultimate parent company. It is also the head of the French tax group put in place between companies subject to French corporation tax.

The Company is a holding company that does not have its own operational or industrial activity.

The Company indirectly holds – via French sub-holding companies, including Arkema France – all the Group's French and foreign subsidiaries, which are grouped by region (France, America, Africa, Asia and Europe).

Arkema France is both a holding and an operating company and holds in particular all of the Group's French operational subsidiaries.

The Company's main direct and indirect subsidiaries at the date of this document are shown in the following simplified organizational chart:



A comprehensive list of all of the Group's consolidated subsidiaries and their geographical location is given in the notes to the consolidated financial statements in section 5.3.3 of this document.

Detailed information on the Company's main subsidiaries is also given in section 5.4.2 of this document.

Information on the Group's structure is given in section 1.2 of this document. The results of each division are presented in chapter 5 of this document.

6.1.3 Related-party transactions

Arkema, the Group's ultimate parent company, is a holding company and provides administrative services to Group companies. The related service agreements are not material and are entered into under ordinary conditions comparable to those applicable to similar transactions with third parties.

Some of the Group's non-consolidated companies sell products or provide services to consolidated Group companies. In addition, certain consolidated Group companies sell products or provide services to certain non-consolidated companies.

These transactions, taken separately or together, are not material. They are carried out under ordinary conditions comparable to those applicable to similar transactions with third parties.

A description of related-party transactions is provided in note 26 to the consolidated financial statements at 31 December 2018 in section 5.3.3 of this document and in the statutory auditors' special report on related-party agreements and commitments, which is included in chapter 7 of this document.

6.2 SHARE CAPITAL

6.2.1 Amount of share capital

At 31 December 2018, the Company's share capital was €765,814,920 divided into 76,581,492 fully paid-up shares of the same class, with a par value of €10 per share. At that date, 318,998 shares were held in treasury. At 1 January 2018, the Company's share capital was made up of 75,870,506 shares.

In 2018, the number of shares increased by 710,986 of which 100,581 from the exercise of stock options and 610,405 from the share capital increase reserved for employees.

6.2.2 History of the Company's share capital over the past three years

Date	Amount of capital	Total number of shares	Nature of operation	Number of shares issued	Capital increase	Share premium
26 April 2016	€754,701,730	75,470,173	Capital increase reserved for employees	998,072	€9,980,720	€32,097,995.52
30 June 2016	€755,811,250	75,581,125	Exercise of stock options	110,952	€1,109,520	€3,115,639.70
31 December 2016	€757,179,470	75,717,947	Exercise of stock options	136,822	€1,368,220	€4,483,416.76
30 June 2017	€757,738,650	75,773,865	Exercise of stock options	55,918	€559,180	€1,329,706.94
31 December 2017	€758,705,060	75,870,506	Exercise of stock options	96,641	€966,410	€3,500,423.61
25 April 2018	€764,809,110	76,480,911	Capital increase reserved for employees	610,405	€6,104,050	€43,930,847.85
30 June 2018	€765,324,560	76,532,456	Exercise of stock options	51,545	€515,450	€1,278,107.85
31 December 2018	€765,814,920	76,581,492	Exercise of stock options	49,036	€490,360	€2,742,093.12

6.2.3 Pledges, guarantees, securities

At 31 December 2018, existing pledges on the Company's direct registered shares and administered registered shares respectively concerned 147 shares held by two shareholders, and 11,860 shares held by three shareholders, representing 0.0001% of the share capital. The Company has no knowledge of pledges concerning other shares of its share capital.

The shares held by the Company in its subsidiaries have not been pledged.

6.2.4 Treasury shares

At 31 December 2018, the Company directly held 318,998 treasury shares.

This section includes (i) a review of the share buyback program authorized in 2018, and (ii) the information that must be given in the description of the share buyback program in accordance with article 241-2 of the general regulations of the French financial markets authority (*Autorité des marchés financiers* – AMF) as well as information required under article L. 225-211 of the French Commercial Code.

REVIEW OF SHARE BUYBACK PROGRAM AUTHORIZED ON 18 MAY 2018 (2018 SHARE BUYBACK PROGRAM)

The combined annual general meeting of 18 May 2018 authorized the Board of Directors to implement a share buyback program capped at 10% of the share capital and subject to a maximum purchase price per share of €135. This authorization, which supersedes the unused portion of the authorization granted by the annual general meeting of 23 May 2017, was granted for an 18-month period from the annual general meeting of 18 May 2018, *i.e.*, until 17 November 2019. It is therefore still in force at the date of this document.

The maximum amount of funds to be allocated to the implementation of the share buyback program may not exceed €135 million.

At its meeting of 21 February 2018, the Board of Directors decided to implement the share buyback program subject to the authorization of the combined annual general meeting of 18 May 2018.

TRANSACTIONS CARRIED OUT AS PART OF THE 2018 SHARE BUYBACK PROGRAM

At 18 May 2018, when the annual general meeting approved the 2018 share buyback program, the Company held, directly or indirectly, 34,360 treasury shares.

The following tables give a summary of the transactions carried out as part of the 2018 share buyback program.

Summary statement at 31 January 2019

Number of shares comprising the Company's share capital at 18 May 2018	76,530,756
Treasury shares held directly or indirectly at 18 May 2018	34,360
Number of shares purchased between 18 May 2018 and 31 January 2019	547,642
Weighted average gross price of shares purchased *(in euros)*	94.46
Number of treasury shares at 31 January 2019	321,998
Number of shares canceled in the last 24 months	None
Book value of portfolio *(in euros)*	28,155,508
Market value of portfolio *(in euros)* based on closing price at 31 January 2019, *i.e.* €82.92	26,700,074

Summary of transactions carried out through the program between 18 May 2018 and 31 January 2019	Aggregate gross movements		Open positions at 31 January 2019	
	Purchases	Sales/transfers	Open buying positions	Open selling positions
Number of shares	547,642	260,004	-	-
Average price of transaction *(in euros)*	94.46	-	-	-
Amounts *(in euros)*	51,730,848	-	-	-

BREAKDOWN OF THE TREASURY SHARES BY OBJECTIVE

At 31 January 2019, the Company's 321,998 treasury shares were allocated for the purpose of covering the Company's plans to grant free shares to its employees and executive officers and those of its affiliated companies.

SHARE BUYBACK PROGRAM SUBMITTED TO THE ANNUAL GENERAL MEETING OF 21 MAY 2019 (2019 SHARE BUYBACK PROGRAM)

The Board of Directors would like the Company to continue to have a share buyback program.

To this end, the Board of Directors proposes to the combined annual general meeting of 21 May 2019 to cancel the 14th resolution voted by the combined annual general meeting of 18 May 2018, for its unused portion, and to authorize the implementation of a new share buyback program in accordance with the provisions of European Parliament and Council regulation no. 596/2014 dated 16 April 2014 and Title IV of Book II of the general regulations of the French financial markets authority (*Autorité des marchés financiers* – AMF).

In accordance with article 241-2 of the AMF's general regulations, the following sections give a description of the share buyback program subject to the authorization of the Company's next shareholders'annual general meeting.

Objectives of the 2019 share buyback program

As part of the 2019 share buyback program that is submitted to the combined annual general meeting of 21 May 2019, the Company is considering repurchasing its own shares for any purpose permitted by law either now or in the future, and notably for the following purposes (unchanged compared to the previous program):

- implementing market practices allowed by the AMF such as (i) purchasing shares in the Company in order to hold them and subsequently tender them in exchange or as payment as part of any potential external growth operations, it being specified that shares acquired in view of subsequently tendering them as consideration for mergers, spin-offs or contributions may not exceed 5% of the share capital at the time of the acquisition, or (ii) purchasing or selling shares within the scope of a liquidity agreement entered into with an investment services provider and compliant with the Code of Conduct approved by the AMF, as well as (iii) any market practice subsequently permitted by the AMF or by law;
- putting in place and complying with obligations notably delivering shares upon the exercise of rights attached to negotiable securities giving access by any means, whether immediately or in the future, to shares in the Company, as well as carrying out any hedging transactions in respect of the Company's obligations (or those of one of its subsidiaries) related to such negotiable securities, under the conditions defined by the market authorities and at the times that the Board of Directors or its delegated representative deems appropriate;

- covering stock option plans granted to employees or executive officers of the Company or its Group;
- granting free shares in the Company to the employees or executive officers of the Company or its Group, notably under the conditions defined by the articles L. 225-197-1 *et seq.* of the French Commercial Code;
- offering employees the opportunity to acquire shares, whether directly or via a company savings plan (*Plan d'épargne entreprise*), under the terms defined by law, and notably articles L. 3332-1 *et seq.* of the French Labor Code (*Code du travail*); and
- canceling all or part of the purchased shares in order to reduce the Company's share capital.

As the authorization granted to the Board of Directors by the annual general meeting of 23 May 2017 enabling the cancelation of purchased shares expires on 22 May 2019, it will be proposed to the annual general meeting of 21 May 2019 to renew this authorization for a further period of 24 months (12th resolution).

Maximum portion of share capital to be repurchased and maximum number of shares that may be acquired under the 2019 share buyback program

The maximum portion of the share capital that can be repurchased under the 2019 share buyback program shall be 10% of the total number of shares making up the Company's share capital (*i.e.*, 76,581,492 shares at 31 January 2019).

In accordance with article L. 225-210 of the French Commercial Code, the number of shares held by the Company at any given date may not be greater than 10% of the shares constituting the Company's share capital on that date.

The securities that the Company is considering acquiring are shares.

Maximum unit purchase price authorized

The maximum purchase price would be €135 per share, it being specified that this purchase price may be adjusted to account for the impact on the share price resulting from transactions such as a capitalization of share premiums, reserves or earnings giving rise either to an increase in the par value of the shares or to the issuance and distribution of free shares as well as a stock split or reverse stock split or any other transaction affecting equity.

The maximum amount of cash allocated to the 2019 share buyback program would be €135 million.

Terms and conditions for the 2019 share buyback program

The shares may be purchased or transferred at any time, except during a takeover bid for the Company's shares, under the conditions and within the limits, particularly as regards volume and price, permitted by law at the date of the transaction concerned, by any and all means, including on the market or over the counter, by way of block trades or by way of derivatives traded on a regulated or over-the-counter market, under the conditions permitted by the market authorities and at the times that the Board of Directors or its delegated representative deems appropriate.

Duration of the 2019 share buyback program

In accordance with the resolution to be submitted for the approval of the combined annual general meeting of 21 May 2019, the 2019 share buyback program would be authorized for a period of 18 months from the date of its approval, *i.e.*, until 20 November 2020.

6.2.5 Summary of authorizations and their application

At 31 December 2018, there were no securities, other than the Company's shares, giving access to the Company's share capital.

The following table gives a summary of the outstanding delegations of authority and authorizations granted by the shareholders'annual general meeting to the Board of Directors, in particular to increase the share capital, as well as their use:

Type of authorization	Description	Date of annual general meeting	Duration of authorization	Maximum authorized nominal amount	Use at 31 December 2018 *(unless otherwise specified)*
Capital increase	Issue shares in the Company and/or securities giving access to shares in the Company **with** preferential subscription rights	18 May 2018	26 months	€379 million €1 billion (debt securities)	None
Capital increase	Issue shares in the Company and/or securities giving access to shares in the Company by means of a public offering, **without** preferential subscription rights but with a priority period of at least three days	18 May 2018	26 months	10% of the Company's share capital at 18 May 2018 €1 billion (debt securities)	None

Type of authorization	Description	Date of annual general meeting	Duration of authorization	Maximum authorized nominal amount	Use at 31 December 2018 *(unless otherwise specified)*
Capital increase	Increase the Company's share capital, **without** preferential subscription rights, through the issue of shares and/or securities giving access to shares in the Company, via an offering referred to in article L. 411-2 II of the French Monetary and Financial Code (*Code monétaire et financier*) (A)	18 May 2018	26 months	10% of the Company's share capital at 18 May 2018 €1 billion (debt securities)	None
Capital increase	In the event of the issue of shares **without** preferential subscription rights, set the issue price in accordance with the terms set forth by the annual general meeting up to a maximum of 10% of the share capital over a 12-month period (B)	18 May 2018	26 months	10% of the Company's share capital at 18 May 2018	None
Capital increase	Issue shares in the Company, within the limit of 10% of the share capital, as compensation for contributions in kind (C)	18 May 2018	26 months	10% of the Company's share capital at 18 May 2018	None
Capital increase	In the event of a capital increase with or without preferential subscription rights, increase the number of shares to be issued	18 May 2018	26 months	15% of the initial issue, subject to the limit stated in the resolution authorizing the issue	None
Capital increase	Overall limit of authorizations to increase the Company's share capital immediately and/or in the future	18 May 2018	26 months	€379 million and 10% of the Company's share capital at 18 May 2018 for authorizations (A) + (B) + (C)	None
Capital increase	Carry out share issues reserved for members of a company savings plan	18 May 2018	26 months	€13.5 million	See section 6.2.7 of this chapter
Share buyback*	Carry out a share buyback program	18 May 2018	18 months	€135 per share €135 million (up to 10% of the share capital at any time)	Use at 31 January 2019: see section 6.2.4 of this chapter
Performance shares*	Grant free shares in the Company subject to performance conditions	7 June 2016	38 months	1,450,000 shares (less than 2% of the share capital at 7 June 2016)	Grant of 357,915 shares ** (9 November 2016) Grant of 360,100 shares ** (8 November 2017) Grant of 359,485 shares ** (5 November 2018)
Capital reduction*	Reduce the share capital by canceling shares	23 May 2017	24 months	10% of the share capital	None

* *This new authorization is detailed in chapter 7 of this document and will be submitted to the vote of the combined annual general meeting of 21 May 2019.*

** *This number could be increased to 391,805 for the 2016 plan, 393,411 for the 2017 plan and 393,272 for the 2018 plan in case of outperformance.*

The Company's share capital at 31 December 2018, which was €765,814,920, divided into 76,581,492 shares, could be increased by 42,728 shares resulting from the exercise of 42,728 stock options, representing a potential maximum dilution of less than 1%.

There are no other securities giving access to the Company's capital either immediately or in the future (see section 6.2.6 of this chapter for a description of these options).

6.2.6 Stock options and performance share plans

In order to retain executives and certain employees and to involve them more closely in the Group's future growth as well as its stock market performance, the Board of Directors has put in place stock option plans and free performance share plans, subject to performance conditions.

In accordance with the applicable stock-based compensation policy, the Board of Directors ceased to grant stock subscription and purchase options in 2012.

Furthermore, since 2007, as the free performance share plans in place were covered by the buyback of shares as part of the Company's share buyback program, these plans have not resulted in any potential dilution for shareholders.

Additional information on the stock option and performance share plans put in place by the Group is given in section 3.5 of this document as well as in note 27 to the consolidated financial statements for the year ended 31 December 2018 set out in section 5.3.3 of this document.

6.2.7 Share capital increase reserved for employees

The Board of Directors regularly reaffirms its intention to pursue a dynamic employee share ownership policy by offering Group employees the opportunity to purchase Arkema shares every two years, with the following preferential terms: 20% discount, with a maximum subscription of 1,000 shares and the allocation of free shares to employees in countries outside France participating in the operation in order to make the offer more attractive.

Consequently, in accordance with the delegation of authority granted by the annual general meeting on 7 June 2016, by delegation of the Board of Directors on 8 November 2017, the Chairman and Chief Executive Officer decided on 6 March 2018 to carry out a share capital increase reserved for employees. The share capital increase took place in 31 countries in which the Group is present, from 9 to 22 March 2018 inclusive.

The subscription conditions were as follows:

- subscription price of €81.97 corresponding to the average opening price quoted in the 20 trading days preceding 6 March 2018, to which a 20% discount was applied;
- for employees of Group companies outside France, allocation of one free share for every four subscribed, up to a maximum of 25 free shares, with a vesting period of four years, with no holding period required, except in Italy and Spain where the shares will vest after three years, followed by a three-year holding period;
- for employees of French companies, possibility of subscribing to the capital increase using sums from the incentive scheme or the profit-sharing scheme, supplemented, as the case may be, by the employer; and
- possibility of spreading payment for the shares over 24 months.

The operation resulted in the issue of 610,405 new shares on 25 April 2018, representing 0.81% of the Company's share capital. A total of 8,413 subscriptions were recorded in 31 countries, for an aggregate amount of €50 million. The employee participation rate grew versus the last share capital increase in 2016, reaching 69% in France and 25% outside France, *i.e.*, an average of 41% given the relative weight of the Group's international operations.

The 2,894 subscriptions by employees based outside France resulted in the allocation of 39,407 free shares, subject to a specific plan, the provisions and beneficiaries of which were approved by the Company's Board of Directors at its meeting of 2 May 2018. At this same meeting, the Board also allocated 1,730 free shares to employees based in countries where the operation could not be offered, on the basis of five free shares per employee.

6.3 SHARE OWNERSHIP

6.3.1 Breakdown of share ownership and voting rights at 31 December 2018

The breakdown of the share capital was established on the basis of a total number of 76,581,492 shares at 31 December 2018, carrying 86,162,135 voting rights (including double voting rights and after deduction of treasury shares), the threshold disclosures made to the AMF or the Company, and an analysis carried out by the Company based on identifiable bearer shares (*Titres au Porteur Identifiable* – TPI). TPI procedures were carried out at the end of 2018, 2017 and 2016.

To the best of the Company's knowledge, the breakdown of Arkema's share ownership and voting rights at 31 December 2018 was as follows:

	% of share capital	% of voting rights	% of theoretical voting rights*
Main shareholders owning at least 5% of the share capital and/or voting rights:			
BlackRock Inc.	9.8	8.8	8.7
Fonds Stratégique de Participations [(1)]	6.2	11.0	11.0
Employee share ownership **[(2)]	5.9	9.5	9.5
Treasury shares	0.4	0.0	0.4
Public	77.7	70.7	70.4
TOTAL	**100**	**100**	**100**

* *Pursuant to article 223-11 of the AMF's general regulations, the number of theoretical voting rights is calculated on the basis of all shares.*

** *See details presented in section 6.3.4 of this chapter.*

(1) *Fonds Stratégique de Participations (FSP) is a member of the Board of Directors and is represented by Isabelle Boccon-Gibod (see section 3.2.1.2 of this document).*

(2) *To the Company's knowledge, the Arkema Actionnariat France and Arkema Actionnariat International company mutual funds (fonds commun de placement d'entreprise – FCPE) held 5.5% of the Company's share capital at 31 December 2018, representing 9.2% of the Company's voting rights. These funds include the shareholdings of employees of the Arkema Group (see section 6.3.4 of this chapter), Total and Kem One (a business divested in 2012).*

To the Company's knowledge, based on its registers and except for the pledges described in section 6.2.3 of this chapter, no shares of the Company have been pledged or used as a guarantee or a surety.

The Company has also put in place an American Depositary Receipt (ADR) program in the United States. For this purpose, it entered into a deposit agreement with Bank of New York Mellon on 18 May 2006. At 31 December 2018, 1,515,388 shares were held by Bank of New York Mellon on behalf of ADR bearers.

6.3.2 Control of the Company

At the date of this document:

- the Company is not controlled, either directly or indirectly, by any single shareholder; and
- to the Company's knowledge, there is no agreement or pact between shareholders, the implementation of which would result in the takeover of the Company.

6.3.3 Clauses likely to have an effect on the control of the Company

No provision of the Articles of Association can delay, defer or prevent a change of control over the Company. However, there are provisions pertaining to double voting rights and limitations on voting rights in articles 17.3 and 17.4 of the Articles of Association, which are presented in section 6.5.2 of this chapter.

6.3.4 Employee share ownership

According to the definition of employee share ownership under the terms of article L. 225-102 of the French Commercial Code, the number of Arkema shares held by employees at 31 December 2018 was 4,506,253, representing 5.9% of the share capital and, taking into account double voting rights, 9.5% of the voting rights. This may be broken down as follows:

Shares held by Group employees within the Arkema Actionnariat France FCPE	2,756,832
Shares held by Group employees within the Arkema Actionnariat International FCPE	380,633
Direct registered shares held within a group savings plan (*Plan d'Épargne Groupe*)	358,085
Shares arising from the exercise of stock options and held as direct registered shares within a group savings plan	231,957
Free shares	778,746
TOTAL EMPLOYEE SHARE OWNERSHIP	**4,506,253**

6.3.5 Legal threshold disclosures

The following legal threshold disclosures were made to the AMF in 2018 and up to the date of this document:

Company	Date threshold crossed	Threshold crossed
BlackRock Inc.	23 February 2018	exceeded the 10% share capital threshold
BlackRock Inc.	27 February 2018	dropped below the 10% share capital threshold
BlackRock Inc.	28 February 2018	exceeded the 10% share capital threshold
BlackRock Inc.	1 March 2018	dropped below the 10% share capital threshold
BlackRock Inc.	2 March 2018	exceeded the 10% share capital threshold
BlackRock Inc.	5 March 2018	dropped below the 10% share capital threshold
BlackRock Inc.	4 June 2018	exceeded the 10% share capital threshold
BlackRock Inc.	12 June 2018	dropped below the 10% share capital threshold
BlackRock Inc.	13 June 2018	exceeded the 10% share capital threshold
BlackRock Inc.	28 June 2018	dropped below the 10% share capital threshold
BlackRock Inc. (1)	2 July 2018	exceeded the 10% share capital threshold
BlackRock Inc.	3 July 2018	dropped below the 10% share capital threshold

(1) At the time, BlackRock made the following statement: "BlackRock Inc. exceeded the 10% threshold of Arkema's share capital in the ordinary course of its business as a portfolio management company, which it carries out without intending to implement any particular strategy with respect to the company or to exercise, for this purpose, specific influence over the latter. BlackRock Inc. is not acting in concert with a third party and has no intention to take over the Company or request that it, or any other person or persons, be appointed as a director, Executive Board member or Supervisory Board member of the Company."

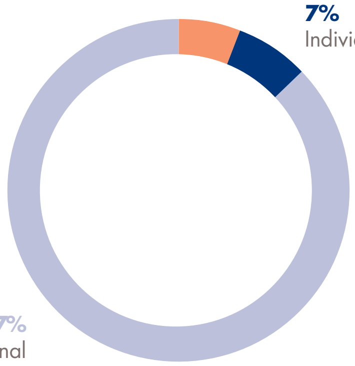
6.3.6 Breakdown of share ownership and voting rights

To the best of the Company's knowledge, Arkema's estimated share ownership at 31 December 2018, 2017 and 2016 was as follows [1]:

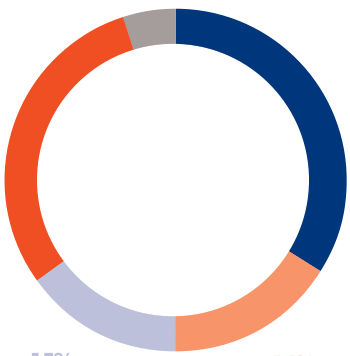
	31 December 2018		31 December 2017		31 December 2016	
	% of share capital	% of voting rights	% of share capital	% of voting rights	% of share capital	% of voting rights
BlackRock Inc.	9.8	8.8	5.9	5.2	5.6	5.0
Fonds Stratégique de Participations	6.2	11.0	6.3	11.1	6.3	11.1
Norges Bank	N/A	N/A	N/A	N/A	5.7	5.0
Other institutional shareholders	70.6	62.7	76.5	67.8	70.8	62.7
Individual shareholders	7.1	8.0	6.2	7.3	6.1	7.2
Employee share ownership	5.9	9.5	5.1	8.6	5.4	9.0
Treasury shares	0.4	0.0	0	0	0.1	0
TOTAL	**100**	**100**	**100**	**100**	**100**	**100**
Number of shares/voting rights	76,581,492	86,162,135	75,870,506	85,632,241	75,717,947	85,516,494

(1) Only shareholdings in excess of 5% of the share capital threshold are shown in the table above.

BREAKDOWN OF SHARE OWNERSHIP BY SHAREHOLDER TYPE (AT 31 DECEMBER 2018)



BREAKDOWN OF SHARE OWNERSHIP BY REGION (AT 31 DECEMBER 2018)



6.4 STOCK MARKET

6.4.1 Stock market information

The Arkema share is listed on Euronext Paris, compartment A. It is eligible for the Deferred Settlement Service (*Système de Règlement Différé* – SRD) as well as the Personal Equity Savings Plan (*Plan d'épargne en actions*).

An American Depositary Receipt (ADR) program has been in place in the United States since 18 May 2006. Each ADR represents one American Depositary Share (ADS), and each ADS in turn represents one Arkema share.

CODES

ISIN	FR0010313833
Ticker	AKE
Reuters	AKE.PA
Bloomberg	AKE FP

INDEXES

The Arkema share is included in the following indexes:

- CAC Next 20;
- CAC Large 60;
- SBF 120;
- Euro Stoxx Chemicals; and
- MSCI.

ARKEMA SHARE PERFORMANCE

	2018	2017	2016
Market capitalization at year-end *(in billions of euros)*	5.7	7.7	7.0
Performance since 1 January *(situation at 31 December)*	-26.2%	+9.3%	+43.9%
Last closing price of the year *(in euros)*	74.96	101.55	92.94
Average of last 30 closing prices *(in euros)*	80.13	103.12	91.75
Highest price of the year *(in euros)*	112.00	110.60	95.28
Lowest price of the year *(in euros)*	72.96	87.69	48.17

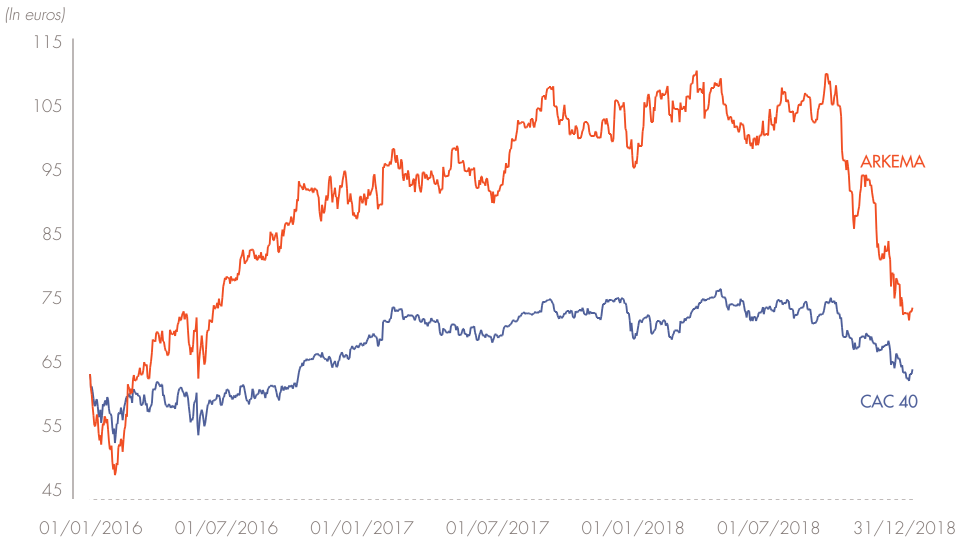
ARKEMA SHARE HISTORICAL DATA SINCE 1 JANUARY 2018

Month	Number of shares traded *(Euronext volumes)* (1)	Trading volume on Euronext *(in millions of euros)* (1)	Highest price *(in euros)*	Lowest price *(in euros)*
January 2018	5,744,061	598.76	108.10	100.10
February 2018	6,339,964	648.33	109.80	94.82
March 2018	5,184,747	554.97	110.70	102.65
April 2018	4,099,668	443.60	112.90	102.90
May 2018	4,958,674	532.60	111.45	104.00
June 2018	5,289,027	541.95	105.80	98.32
July 2018	4,094,579	422.88	107.75	98.84

Month	Number of shares traded *(Euronext volumes)* [(1)]	Trading volume on Euronext *(in millions of euros)* [(1)]	Highest price *(in euros)*	Lowest price *(in euros)*
August 2018	3,911,682	419.08	110.00	103.30
September 2018	4,186,982	450.37	111.65	103.05
October 2018	6,344,186	613.09	109.95	85.02
November 2018	6,317,946	567.46	97.00	81.66
December 2018	5,787,126	452.15	88.38	72.64
January 2019	5,905,902	480.29	85.50	72.88
February 2019	5,246,129	443.76	89.84	79.16

(1) Source: Euronext monthly statistics.

ARKEMA SHARE PRICE CHANGES SINCE 1 JANUARY 2016



In 2018, the share price fell 26.2%, primarily towards the end of the year, against a backdrop of stock market concerns over the level of demand in various end markets, such as automotive and construction, and the consequences of geopolitical tensions between the United States and China in particular. The share price increased 16.1% between 1 January 2016 and 31 December 2018.

6.4.2 Financial communication

The Group regularly provides information on its activities, results and outlook to its shareholders, investors and analysts, and to the financial community at large. Group press releases, financial reports and presentations, and minutes of annual general meetings are available in the "Investor Relations" section on the Group's website (www.finance.arkema.com).

Every year, the Group files a reference document with the AMF. This document is available on the AMF website (www.amf-france.org) and on the Group's website (www.finance.arkema.com). A French version of this reference document is also available on the Group's website.

6.4.3 Relations with institutional investors and financial analysts

The Group is committed to maintaining an active and permanent dialogue with institutional investors and financial analysts, in particular through roadshows and conferences. Representatives from the Group's executive management, primarily the Chairman and Chief Executive Officer and the Chief Financial Officer, regularly meet with portfolio managers and financial analysts in the main financial hubs in Europe, North America and Asia. The Investor Relations team also regularly meets with the financial community. The purpose of these various meetings is to inform the market of the Group's results and main operations and improve investors' and analysts' understanding of its activities, strategy and outlook.

On the publication of its quarterly, half-yearly and annual results, a conference call with the financial community is hosted by the Chairman and Chief Executive Officer or by the Chief Financial Officer.

In 2018, the Group held some 400 meetings and took part in a number of industry conferences, notably in Paris and London. In July 2017, the Group organized a Capital Markets Day in France, which was attended by around 40 participants.

6.4.4 Relations with individual shareholders

The Group aims to inform its individual shareholders about its strategy, results and activities, with an emphasis on open dialogue, discussion and meetings.

Arkema meets with its individual shareholders on a regular basis, in particular at the annual general meeting which is a special opportunity for information and dialogue about the Group's strategy and development. In 2018, Arkema also participated in the Actionaria investor fair in Paris and attended meetings with individual shareholders in the Paris region and across France.

Additionally, through its shareholders' Club, the Group organizes various activities throughout the year that give its members the opportunity to discover the world of chemistry, and the innovations and applications of chemical products in everyday life.

Presentations, interviews, reports and shareholder newsletters are available in the "Individual shareholders" section of the Group's website (www.finance.arkema.com).

6.4.5 Investor relations contacts

Institutional investor relations department

Telephone:

+33 (0)1 49 00 74 63

Email address: investor-relations@arkema.com

Individual shareholder relations department

Telephone:

0 800 01 00 01 (free to call within France)

+33 (0)1 71 29 81 70 (outside France)

Email address: actionnaires-individuels@arkema.com

6.4.6 Registered shares

Arkema shares can be registered in the name of the holders. In this case, shareholders are identified by Arkema in its capacity as issuer, or by its agent BNP Paribas Securities Services, which is responsible for the shareholders' register.

Advantages of registered shares include:

- double voting rights if shares are held for two years continuously (see section 6.5.2 of this chapter); and
- the possibility of directly receiving the notice of the annual general meeting.

Contact details for registered shares

BNP Paribas Securities Services

CTS – Services aux Émetteurs

Les Grands Moulins de Pantin

9, rue du Débarcadère

93761 Pantin Cedex – France

Telephone:

- 0 800 115 153 (within France)
- +33 (0)1 55 77 41 17 (outside France)

Email address: paris_bp2s_arkema_actionnaires@bnpparibas.com

6.4.7 Dividend policy

Dividends are a key component of the Group's shareholder return policy. Therefore, the Company aims to pay a stable to growing dividend each year.

Taking into account this policy and the Group's performance in 2018, the Board of Directors decided, at its meeting on 26 February 2019, after closing the financial statements at 31 December 2018, to propose to the annual general meeting of 21 May 2019 the payment of a cash-only dividend of €2.50 per share, up around 9% compared to 2017.This decision reflects the very good results of the Group and the Board of Directors' confidence in the Group's development prospects.

Shares will be traded ex-dividend on 27 May 2019 and the dividend will be paid as from 29 May 2019.

	2018 (1)	2017	2016	2015	2014
Dividend per share *(in euros)* (2)	2.50	2.30	2.05	1.90	1.85
Payout ratio (dividend per share/adjusted net income per share)	26%	29%	37%	45%	51%

(1) In 2018, dividend proposed to the annual general meeting of 21 May 2019.
(2) Dividend eligible for the 40% deduction under article 158.3-2° of the French Tax Code (Code général des impôts).

Since 2007, the first year during which the Group distributed a dividend, the dividend has increased by an average of around 12% a year.

6.5 EXTRACT FROM THE ARTICLES OF ASSOCIATION

6.5.1 General meetings (articles 16, 17.1 and 17.2 of the Articles of Association)

NOTICE OF MEETING – PLACE OF MEETING – ADMISSION

General meetings are called under the conditions provided for by applicable laws and regulations.

Meetings are held at the registered office or at any other place indicated in the notice of meeting.

In compliance with current regulatory requirements, all shareholders have the right to attend general meetings and to participate in the deliberations or to be represented, regardless of the number of shares they own, provided that it can be proven in accordance with legal and regulatory provisions that the shares have been registered in their name or in that of an intermediary duly authorized on their behalf under the terms of paragraph seven of article L. 228-1 of the French Commercial Code, within the regulatory period, either in the registered share accounts held by the Company or in the bearer securities accounts held by the authorized intermediary.

The registration or accounting entry of the shares in bearer securities accounts held by the authorized intermediary shall be evidenced by a shareholding certificate issued by the intermediary holding the account under applicable legal and regulatory conditions.

EXERCISE OF VOTING RIGHTS

As from the time the meeting is called, any shareholder may request from the Company in writing a paper absentee ballot, or, if the Board of Directors provides for this option in both the announcement and notice of meeting, an electronic absentee ballot. Such requests must be delivered to or received at the registered office of the Company no later than six days before the date of the meeting. The Board of Directors has the power to reduce or waive this period.

Paper absentee ballots must be delivered to or received by the Company at least three days before the date of the general meeting. Electronic absentee ballots may be delivered to or received by the Company until 3.00pm. (CET) on the eve of the general meeting. The Board of Directors or Chairman, if so authorized by delegation, has the power to reduce or waive this period.

REPRESENTATION

A shareholder may be represented at general meetings by another shareholder, his or her spouse, civil union partner, or by any other person or legal entity under the terms provided for in articles L. 225-106 *et seq.* of the French Commercial Code.

Shareholders that are legal entities attend meetings through their legal representatives or any proxy appointed for this purpose.

Any member of the meeting who wishes to be represented by proxy must send a proxy form to the Company, either on paper, or, if the Board of Directors provides for this option in both the announcement and notice of meeting, in electronic format, at least three days before the meeting. However, the Board of Directors, or by delegation, the Chairman, has the power to reduce or waive such notice periods and to accept proxy forms that do not fall within this limit.

Proxies in electronic format may be delivered or received by the Company until 3.00pm. (CET) on the eve of the general meeting. The Board of Directors, or by delegation, the Chairman, has the power to reduce or waive this period.

USE OF TELECOMMUNICATIONS

The Board of Directors has the power to decide that shareholders who take part in the general meeting by video conference or other means of telecommunication that enable them to be identified and where the nature and conditions of such means of participation are determined by the French Commercial Code, shall be deemed present for the purposes of calculating the quorum and majority.

CHAIRMAN OF THE GENERAL MEETING

General meetings are chaired by the Chairman of the Board of Directors or, in his or her absence, by a director who is appointed specifically for this purpose by the Board of Directors. Failing this, the meeting elects its own Chairman.

QUORUM AND MAJORITY

General meetings, whether they are ordinary, extraordinary, combined or special, are duly constituted when they meet the quorum and majority conditions provided for by applicable laws and regulations governing such meetings, and exercise the powers ascribed to them by the law.

6.5.2 Voting rights (articles 17.3 and 17.4 of the Articles of Association)

VOTING RIGHTS, DOUBLE VOTING RIGHTS (ARTICLE 17.3 OF THE ARTICLES OF ASSOCIATION)

Subject to the provisions set forth below, each member of the meeting is entitled to as many voting rights and votes as the number of shares he owns or represents, providing that all payments due for such shares have been met.

However, double voting rights are conferred on all fully paid up shares in registered form that have been registered in the name of the same shareholder for at least two years, under the conditions applicable by law and by regulations.

Furthermore, in the event of a capital increase by capitalization of reserves, profits or share premiums, double voting rights are conferred, as of their issue, to shares in registered form allocated to shareholders on the basis of existing shares held by such shareholders and conferring such entitlement.

The merger or spin-off of the Company has no effect on double voting rights, which may be exercised within the beneficiary company or companies if the Articles of Association of such company provide for such rights.

Any share converted to a bearer share or the ownership of which is transferred loses the double voting rights gained under the three provisions above. However, a transfer resulting from inheritance, the separation of assets between spouses or an *inter vivos* gift to a spouse or close relative does not result in the loss of rights acquired nor interrupt the qualifying period indicated above.

LIMITATION ON VOTING RIGHTS (ARTICLE 17.4 OF THE ARTICLES OF ASSOCIATION)

In a general meeting, no shareholder may, directly or through a proxy, express more than 10% of the total voting rights attached to the Company's shares, taking into account single voting rights attached to shares that he directly or indirectly holds and to the powers conferred to him. However, if such a shareholder also holds double voting rights personally or as a proxy, the 10% limit may be exceeded, taking into account only the additional voting rights resulting therefrom, and the combined voting rights expressed shall not exceed 20% of the total voting rights attached to the Company's shares.

In application of the foregoing provisions:

- the total number of voting rights attached to the Company's shares that is taken into consideration is calculated as of the date of the general meeting and the shareholders are notified thereof at the beginning of such general meeting;
- the number of voting rights held directly or indirectly means those that are attached to shares held by an individual, either personally or jointly, or by a company, group, association or foundation, and those that are attached to shares held by a company that is controlled within the meaning of article L. 233-3 of the French Commercial Code, by another company or by an individual, association, group or foundation; and
- a shareholder's proxy returned to the Company without stating the name of the proxy is subject to the foregoing limitations. However, such limitations do not apply to the Chairman of a general meeting who is voting by virtue of all such proxies combined.

The limitations provided in the foregoing paragraphs have no impact on the calculation of the total number of voting rights, including double voting rights, which are attached to the Company's shares and which must be taken into account when applying the legal, regulatory or statutory provisions providing for specific obligations by reference to the number of voting rights existing in the Company or the number of shares having voting rights.

The limitations set forth above shall lapse, without any need for a new resolution by an extraordinary general meeting, whenever an individual or a legal entity, acting separately or in concert with one or more individuals or legal entities, should come to hold at least two thirds of the total number of shares in the Company following a takeover bid for all of the Company's shares. The Board of Directors then recognizes that the limitations have lapsed, and carries out the related formalities to amend the Articles of Association.

6.5.3 Appropriation of earnings (article 20 of the Articles of Association)

The following sums are allocated from the Company's profits for the year, less any retained losses, in the following order:

1. at least 5% is allocated to the legal reserve fund; once the legal reserve fund amounts to one-tenth of the share capital, this allocation is no longer mandatory;
2. any amounts that the shareholders have resolved to transfer to reserves, for which they will determine the allocation or use; and
3. any amount that the annual general meeting shall decide to allocate to retained earnings.

Any remaining balance is paid out to the shareholders as dividends. The Board of Directors may pay interim dividends under the conditions provided for by applicable laws and regulations.

The general meeting called to approve the accounts for the financial year may grant each shareholder the option to receive all or part of the dividends or interim dividends in cash or in shares.

The general meeting may, at any time, on the Board of Directors' recommendation, decide to distribute all or part of the amounts contained in the reserve fund accounts either in cash or in shares in the Company.

6.5.4 Rights and obligations attached to the shares (article 9 of the Articles of Association)

In addition to the right to vote, each share gives the holder the right of ownership of a portion of the Company's assets, profits and winding-up dividends (*boni de liquidation*), determined proportionately to the shareholding it represents.

Ownership of a share entails compliance with the Articles of Association of the Company and with all resolutions approved by the Company's shareholders at general meetings.

Any changes to the rights attached to the shares are subject to legal provisions.

6.5.5 Form and transfer of shares (article 7 of the Articles of Association)

Shares may be held in registered or bearer form as required by the shareholder, unless stipulated otherwise by legal or regulatory provisions.

The shares are freely negotiable. They are registered in an account and may be transferred from one account to another, in accordance with applicable laws and regulations.

6.5.6 Identification of shareholders (article 8.1 of the Articles of Association)

The Company may at any time make use of all applicable laws and regulations to identify the holders of securities that confer immediate or future voting rights in its general meetings.

For the purposes of identifying the holders of shares in bearer form, the Company has the right, under the conditions provided for by the applicable laws and regulations, to request at any time, at its own expense, that the central depository in charge of its securities issue account provide, as the case may be, the name or company name, nationality, year of birth or of incorporation and the address of the holders of securities giving immediate or future access to voting rights at its general meetings as well as the number of securities held by each and any restrictions that may apply to such securities. If such information is not received within the period of time stipulated by the applicable regulations or if the information provided by the custodian account-holder is incomplete or erroneous, the central depository may request that the President of the district court (*Président du tribunal de grande instance*) order such information to be provided under financial compulsion in a summary proceeding (*en référé*).

The information obtained by the Company cannot be transferred thereby, even at no charge, subject to the criminal sanctions provided for by article 226–13 of the French Criminal Code (*Code pénal*).

Under the conditions specified by applicable laws and regulations (particularly those concerning time limits), the intermediary registered on behalf of holders of securities in registered form who are not domiciled on the French territory is required to disclose the identity of the holders of such securities and the number of securities held by each, at the request of the Company or of its representative, which may be submitted at any time.

As long as the Company deems that certain holders of securities in bearer form or in registered form whose identity has been communicated to the Company hold such shares on behalf of third parties, it has the right to request such holders to disclose the identity of the owners of these securities and the number of securities held by each such owner under the conditions indicated above. When a person who has received a request in accordance with the foregoing provision fails to provide the information thus requested within the time specified by laws and regulations, or has provided incomplete or erroneous information either with regard to his own role, the owners of the securities, or the number of securities held by each, the shares or securities giving immediate or future access to the share capital and for which that person was registered shall be disqualified for voting purposes at any general meeting that may be held until the date on which all such information is made accurate, and payment of the corresponding dividend shall be postponed until such date.

Moreover, in the event that a registered person should knowingly fail to comply with the above provisions, the court having jurisdiction in the territory of the Company's registered office may, at the request of the Company or of one or more shareholders holding at least 5% of the share capital, partially or completely disqualify the questionable shares from voting and potentially from receiving the dividend, for a total of no more than five years.

Furthermore, without prejudice to the disclosure requirements set forth in article 8.2 of the Articles of Association, the Company may ask any legal entity that holds shares in the Company for more than one-fortieth of the share capital or voting rights to disclose the identity of persons who directly or indirectly hold more than one-third of the share capital or of the voting rights which are liable to be exercised at general meetings of such legal entity.

6.5.7 Thresholds (article 8.2 of the Articles of Association)

In addition to the legal obligation to inform the Company of any shareholdings or voting rights that they may hold, any individual or legal entity acting alone or in concert that has come into possession, within the meaning of articles L. 233-9 and L. 233-10 of the French Commercial Code, either directly or indirectly, of a percentage of the share capital or voting rights equal to or greater than 1%, is required to inform the Company, by registered mail with return receipt, of the total number of shares, voting rights and securities giving future access to the Company's capital, as well as the voting rights attached thereto, whether they are held alone or in concert, directly or indirectly, within five stock market trading days starting on the date on which it crossed this threshold.

Above this 1% threshold and up to 30%, this disclosure requirement must be fulfilled under the conditions set forth above, each time the shareholder crosses a multiple of 0.5% of the share capital or voting rights.

Failure to make the threshold disclosures as set forth in the first two paragraphs above shall result in those shares that should have been disclosed being disqualified for voting purposes at general meetings, if such failure is acknowledged and if so requested at a meeting by one or more shareholders together holding at least 3% of the Company's share capital or voting rights.

All shareholders, whether natural persons or legal entities, must also notify the Company in the manner and within the time limits indicated in the first two paragraphs above, whenever their direct, indirect or joint holdings fall below any of the thresholds mentioned in the said paragraphs.

ANNUAL GENERAL MEETING

7

The different parts constituting the annual financial report are identified in the table of contents by the pictogram AFR

7.1 STATUTORY AUDITORS' SPECIAL REPORT ON RELATED-PARTY AGREEMENTS AND COMMITMENTS

This is a free translation into English of the statutory auditors' special report on related-party agreements and commitments issued in French and is provided solely for the convenience of English speaking readers. This report should be read in conjunction with, and construed in accordance with, French law and professional auditing standards applicable in France.

KPMG Audit
Département de KPMG S.A.

Tour Eqho
2, avenue Gambetta
92066 Paris-La Défense Cedex
775 726 417 R.C.S. Nanterre

Statutory auditor
Member of the Compagnie Régionale de Versailles

Ernst & Young Audit

Tour First
TSA 14444
92037 Paris-La Défense Cedex
S.A.S. à capital variable
344 366 315 R.C.S. Nanterre

Statutory auditor
Member of the Compagnie Régionale de Versailles

Arkema

Annual general meeting held to approve the financial statements for the year ended 31 December 2018

Statutory auditors' special report on related party agreements and commitments

To the annual general meeting of Arkema,

In our capacity as statutory auditors of your Company, we hereby present to you our report on related-party agreements and commitments.

We are required to inform you, on the basis of the information provided to us, of the terms and conditions of those agreements and commitments indicated to us, or that we may have identified in the performance of our engagement, as well as the reasons justifying why they benefit the Company. We are not required to give our opinion as to whether they are beneficial or appropriate or to ascertain the existence of other agreements and commitments. It is your responsibility, in accordance with article R. 225-31 of the French Commercial Code (*Code de commerce*), to assess the relevance of these agreements and commitments prior to their approval.

We are also required, where applicable, to inform you in accordance with article R. 225-31 of the French Commercial Code of the implementation, during the year ended 31 December 2018, of the agreements and commitments already approved by the annual general meeting.

We performed the procedures that we considered necessary in compliance with professional guidance issued by the French Institute of statutory auditors (*Compagnie nationale des commissaires aux comptes*) relating to this type of engagement. These procedures consisted in verifying the consistency of the information provided to us with the relevant source documents.

AGREEMENTS AND COMMITMENTS SUBMITTED FOR APPROVAL TO THE ANNUAL GENERAL MEETING

We hereby inform you that we have not been notified of any agreements or commitments authorized during the year ended 31 December 2018 to be submitted to the annual general meeting for approval in accordance with article L. 225-38 of the French Commercial Code.

AGREEMENTS AND COMMITMENTS ALREADY APPROVED BY THE ANNUAL GENERAL MEETING

We hereby inform you that we have not been notified of any agreements or commitments previously approved by the annual general meeting, whose implementation continued during the year ended 31 December 2018.

In addition, we have been notified that the following agreements and commitments, which were approved by the annual general meeting in prior years, were not implemented during the year ended 31 December 2018.

With Mr Thierry Le Hénaff, the Chairman and Chief Executive Officer of Arkema

In its meeting on 2 March 2016, your Board of Directors decided to renew the commitment relating to the termination of the duties of Mr Thierry Le Hénaff, Chairman and Chief Executive Officer, in the event of a forced departure. In accordance with article L. 225-42-1 of the French Commercial Code, the granting of this indemnity was submitted for the approval of your annual general meeting, held on 7 June 2016.

The Chairman and Chief Executive Officer shall only benefit from a departure indemnity in the event of a forced departure, regardless of the form this departure takes, notably in the event of removal before the end of his term or non-renewal of his term as Chairman and Chief Executive Officer at the end thereof, relating to a change in control or strategy. The indemnity shall not be due in the event of serious or willful misconduct.

The amount of this indemnity shall not exceed two years' total annual gross remuneration (fixed and variable), it being specified that the basis for calculating the latter shall be the fixed remuneration for the year during which the forced departure occurs, and the average of the last two amounts of variable annual remuneration paid prior to the departure.

The methods for calculating this indemnity are specified in our special report dated 11 March 2016.

Paris-La Défense, 26 February 2019

The statutory auditors

French original signed by

KPMG Audit

Department of KPMG S.A.

Bertrand Desbarrières

François Quédiniac

ERNST & YOUNG Audit

Denis Thibon

7.2 PROPOSED AGENDA AND PROPOSED RESOLUTIONS SUBMITTED TO THE ANNUAL GENERAL MEETING

7.2.1 Proposed agenda for the annual general meeting of 21 May 2019

RESOLUTIONS SUBMITTED TO THE ORDINARY GENERAL MEETING

- Approval of the Company's financial statements for the year ended 31 December 2018.
- Approval of the consolidated financial statements for the year ended 31 December 2018.
- Allocation of profit for the year ended 31 December 2018 and distribution of dividends.
- Statutory auditors' special report on related-party agreements and commitments referred to in articles L. 225-38 *et seq.* of the French Commercial Code (*Code de commerce*).
- Reappointment of Victoire de Margerie as a member of the Board of Directors.
- Reappointment of Hélène Moreau-Leroy as a member of the Board of Directors.
- Reappointment of Laurent Mignon as a member of the Board of Directors.
- Appointment of Ian Hudson as a member of the Board of Directors.
- Approval of the principles and criteria for setting, allocating and awarding the fixed, variable and exceptional components of the total compensation and benefits of any kind to be awarded to the Chairman and Chief Executive Officer.
- Approval of the components of compensation due or awarded to the Chairman and Chief Executive Officer for the year ended 31 December 2018.
- Authorization granted to the Board of Directors to carry out a share buyback program.

RESOLUTIONS SUBMITTED TO THE EXTRAORDINARY GENERAL MEETING

- Authorization granted to the Board of Directors for a period of 24 months to reduce the share capital by canceling shares.
- Authorization granted to the Board of Directors to award free shares in the Company.
- Powers to carry out formalities.

7.2.2 Proposed resolutions submitted to the annual general meeting of 21 May 2019

RESOLUTIONS SUBMITTED TO THE ORDINARY GENERAL MEETING

First resolution

(Approval of the Company's financial statements for the year ended 31 December 2018)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having considered the Company's financial statements for the year ended 31 December 2018, the Board of Directors' management report and the statutory auditors' reports, approves said financial statements as well as the transactions reflected therein and described in said reports.

In accordance with the provisions of article 223 *quater* of the French Tax Code (*Code général des impôts*), the annual general meeting formally notes that no expenses or charges referred to in article 39-4 of said code were incurred during the past financial year.

Second resolution

(Approval of the consolidated financial statements for the year ended 31 December 2018)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having considered the consolidated financial statements for the year ended 31 December 2018, the Board of Directors' Group management report and the statutory auditors' report on the consolidated financial statements, approves said financial statements as well as the transactions reflected therein and described in said reports.

Third resolution

(Allocation of profit for the year ended 31 December 2018 and distribution of dividends)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having noted that the Company's financial statements for the year ended 31 December 2018 show a profit of €521,930,576.54, plus prior retained earnings of €1,548,709,753.43 and a legal reserve surplus of €24,386,278.27, decides, as recommended by the Board of Directors, to allocate the profit for the financial year as follows:

Source	
Profit for the period	€521,930,576.54
Prior retained earnings	€1,548,709,753.43
Legal reserve surplus [(1)]	€24,386,278.27
Distributable profit	€2,095,026,608.24
Allocation	
Dividend distribution [(2)]	€191,453,730
Retained earnings	€1,903,572,878.24

(1) Portion of the legal reserve that exceeds 10% of the share capital at 31 December 2018.

(2) The total dividend distribution is calculated on the basis of the number of shares carrying dividend rights at 1 January 2018 and existing on the date of the Board of Directors' meeting adopting the proposed resolution and therefore granting dividend rights. The total may vary if the number of shares carrying dividend rights changes up to the ex-dividend date depending, for example, on the number of treasury shares held by the Company.

Accordingly, the annual general meeting decides to pay a dividend of €191,453,730 with regard to the 76,581,492 shares carrying dividend rights on 1 January 2018 and existing on the date of the Board of Directors' meeting adopting the proposed resolutions, corresponding to a distribution of two euros and fifty cents (€2.50) per share, it being specified that full powers are granted to the Board of Directors to set the definitive total amount of the dividend, the balance of distributable income and consequently the amount to be allocated to retained earnings.

The shares will be traded ex-dividend as of 27 May 2019 and the dividend for the 2018 financial year will be paid on 29 May 2019.

The dividend is eligible for the 40% tax relief available to individual shareholders domiciled for tax purposes in France as provided for in article 158.3-2° of the French Tax Code.

The dividend paid for the last three financial years was as follows:

Financial year	2018	2017	2016
Net dividend per share *(in euros)*	2.50 [(1)]	2.30 [(1)]	2.05 [(1)]

(1) Eligible in full for the 40% tax relief available to individual shareholders domiciled for tax purposes in France as provided for in article 158.3 2° of the French Tax Code.

Fourth resolution

(Approval of the statutory auditors' special report on related-party agreements and commitments referred to in articles L. 225-38 et seq. of the French Commercial Code)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having considered the statutory auditors' special report provided for in article L. 225-40 of the French Commercial Code, in which no new agreement is identified, duly notes the information relating to the agreements entered into and the commitments made during the financial year and prior financial years and approved by the annual general meeting.

Fifth resolution

(Reappointment of Victoire de Margerie as a member of the Board of Directors)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, having considered the Board of Directors' report and noting that the term of office as a director of Victoire de Margerie expires on the date of this meeting, decides to re-elect her for a term of four (4) years expiring at the close of the annual general meeting to be held in 2023 to approve the financial statements for the financial year ending 31 December 2022.

Sixth resolution

(Reappointment of Hélène Moreau-Leroy as a member of the Board of Directors)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, having considered the Board of Directors' report and noting that the term of office as a director of Hélène Moreau-Leroy expires on the date of this meeting, decides to reappoint her for a term of four (4) years expiring at the close of the annual general meeting to be held in 2023 to approve the financial statements for the financial year ending 31 December 2022.

Seventh resolution

(Reappointment of Laurent Mignon as a member of the Board of Directors)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having considered the Board of Directors' report and noting that the term of office of Laurent Mignon expires on the date of this meeting, decides to reappoint him for a term of four (4) years expiring at the close of the annual general meeting to be held in 2023 to approve the financial statements for the financial year ending 31 December 2022.

Eighth resolution

(Appointment of Ian Hudson as a member of the Board of Directors)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having considered the Board of Directors' report, decides to appoint Ian Hudson as a director for a term of four (4) years expiring at the close of the annual general meeting to be held in 2023 to approve the financial statements for the financial year ending 31 December 2022.

Ninth resolution

(Approval of the principles and criteria for setting, allocating and awarding the fixed, variable and exceptional components of the total compensation and benefits of any kind to be awarded to the Chairman and Chief Executive Officer)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings pursuant to article L. 225-37-2 of the French Commercial Code, and having considered the Board of Directors' report on corporate governance provided for in article L. 225-37 of the French Commercial Code, approves the principles and criteria for setting, allocating and awarding the fixed, variable and exceptional components of the total compensation and benefits of any kind to be awarded, in the exercise of his term of office, to the Chairman and Chief Executive Officer.

Tenth resolution

(Approval of the components of compensation due or awarded to the Chairman and Chief Executive Officer for the year ended 31 December 2018)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings pursuant to article L. 225-100 of the French Commercial Code, and having considered the Board of Directors' report on corporate governance provided for in article L. 225-37 of the French Commercial Code, approves the fixed, variable and exceptional components of the total compensation and benefits of any kind due or awarded to Thierry Le Hénaff, Chairman and Chief Executive Officer, for the year ended 31 December 2018, as set out in said report.

Eleventh resolution

(Authorization granted to the Board of Directors for a period of 18 months to carry out a share buyback program)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having considered the Board of Directors' report, authorizes the Board of Directors, or any person duly authorized to act on its behalf, to purchase or arrange to have purchased shares in the Company in accordance with articles L. 225-209 *et seq.* of the French Commercial Code, regulation (EU) no. 596/2014 of the European Parliament and of the Council of 16 April 2014 and Title IV of Book II of the general regulations of the French financial markets authority (*Autorité des marchés financiers* – AMF). The number of shares that may be held by the Company under this authorization at any given date may not be greater than 10% of the share capital. The number of shares held by the Company may be adjusted as necessary to take into account transactions that affect the share capital occurring after this annual general meeting. The authorization is given under the following conditions:

(i) the maximum purchase price is €135 per share.

However, the Board of Directors may adjust the purchase price to take into account the impact on the share price of transactions such as a capitalization of share premiums, reserves or earnings giving rise either to an increase in the par value of the shares or the issuance and award of free shares, a stock split or reverse stock split, or any other transaction affecting shareholders' equity;

(ii) the maximum amount that may be dedicated to this share buyback program is €135 million;

(iii) under no circumstances can the Company hold, directly or indirectly, more than 10% of its share capital as a result of the purchases made pursuant to this authorization;

(iv) the shares redeemed and held by the Company shall have no voting or dividend rights;

(v) such shares may be purchased or transferred at any time, except from the date of a takeover bid until the end of the offer period, under the conditions and within the limits, particularly as regards volume and price, permitted by law at the date of the transaction in question, by any and all means, including on the market or over the counter, by way of block trades or derivative financial instruments or warrants traded on a regulated or over-the-counter market, under the conditions permitted by the market authorities and at the times the Board of Directors or its delegated representative deems appropriate.

The annual general meeting decides that these share purchases can be made for any purpose permitted by law either now or in the future, and notably for the following purposes:

(i) implementing market practices allowed by the AMF such as (a) purchasing shares in the Company in order to hold them and subsequently tender them in exchange or as payment as part of any potential external growth transactions, it being specified that the shares acquired for this purpose may not exceed 5% of the Company's share capital at the time of the acquisition or (b) purchasing or selling shares within the scope of a liquidity agreement entered into with an investment services provider and compliant with the Code of Conduct approved by the AMF, as well as (c) any market practice subsequently permitted by the AMF or by law;

(ii) putting in place and complying with obligations and in particular delivering shares upon the exercise of rights attached to securities giving immediate or future access by any means to shares in the Company, as well as carrying out any hedging transactions in respect of the Company's obligations regarding such securities, in accordance with the conditions provided for by the market authorities and at the times the Board of Directors or its delegated representative deems appropriate;

(iii) covering stock option plans granted to employees or executive officers of the Company or its Group;

(iv) granting free shares in the Company to employees or executive officers of the Company or its Group, particularly under the conditions provided for in articles L. 225-197-1 *et seq.* of the French Commercial Code;

(v) offering employees the opportunity to acquire shares, whether directly or via a company savings plan (*Plan d'épargne entreprise*), under the terms provided for by law and notably articles L.3332-1 *et seq.* of the French Labor Code (*Code du travail*); and

(vi) canceling all or some of the purchased shares in order to reduce the Company's share capital.

The annual general meeting grants full powers to the Board of Directors, with the possibility to sub-delegate such powers under the conditions set by law, to ensure the implementation of this authorization, and in particular to set the terms and conditions thereof, carry out the share buyback program and notably place all stock market orders, enter into any agreements, prepare and amend any documents, in particular information documents, carry out all formalities, including assigning or reassigning the purchased shares to the various purposes pursued, make all declarations to the AMF and any other bodies and, in general, do whatever may be necessary.

The annual general meeting decides that this authorization is granted for a period of eighteen (18) months from the date of this annual general meeting. It renders ineffective the unused portion of any prior authorization granted for the same purpose and in particular that given by the annual general meeting of 18 May 2018 in its 14th resolution.

RESOLUTIONS SUBMITTED TO THE EXTRAORDINARY GENERAL MEETING

Twelfth resolution

(Authorization granted to the Board of Directors for a period of 24 months to reduce the share capital by cancelling shares)

The annual general meeting, voting in accordance with the quorum and majority requirements for extraordinary general meetings, and having considered the Board of Directors' report and the statutory auditors' special report, in accordance with the provisions of articles L. 225-209 *et seq.* of the French Commercial Code:

- authorizes the Board of Directors to reduce the share capital, on one or more occasions, in the proportions and at the times it deems appropriate, by the cancellation of any number of treasury shares up to a maximum of 10% of the Company's share capital per twenty-four (24) month period. The number of the Company's shares may be adjusted as necessary to take into account transactions that affect the share capital occurring after this annual general meeting;
- decides that the difference between the purchase price of the canceled shares and their par value will be allocated to the "share premium" account or to any other available reserve account, including the legal reserve, within the limit of 10% of the share capital reduction; and
- grants full powers to the Board of Directors, with the possibility to sub-delegate such powers under the conditions set by law, to carry out the share capital reduction resulting from the cancellation of shares and the abovementioned allocation, and accordingly amend the Company's Articles of Association and carry out any necessary formalities.

The annual general meeting decides that this authorization is granted to the Board of Directors for a period of twenty-four (24) months from the date of this annual general meeting. It renders ineffective any prior authorization granted for the same purpose and in particular that given by the annual general meeting of 23 May 2017 in its 12th resolution.

Thirteenth resolution

(Authorization granted to the Board of Directors for a period of 38 months to award free shares in the Company, subject to performance conditions and up to the limit of 1,500,000 shares, i.e., less than 2% of the share capital)

The annual general meeting, voting in accordance with the quorum and majority requirements for extraordinary general meetings, and having considered the Board of Directors' report and the statutory auditors' special report, in accordance with articles L. 225-197-1 *et seq.* of the French Commercial Code:

1. authorizes the Board of Directors to award existing shares or shares to be issued in the Company free of consideration, on one or more occasions, to grantees or categories of grantees determined by the Board of Directors among the employees and/or eligible executive officers (within the meaning of article L. 225-197-1.II of the French Commercial Code) of the Company or of related companies or groups within the meaning of article L. 225-197-2 of said code;
2. decides that the free shares granted to the aforementioned eligible executive officers of the Company and Executive Committee members shall be subject to at least two performance criteria (one internal criterion and one external criterion) decided by the Board of Directors, on the basis of which the number of vested shares shall be determined. These criteria shall be assessed over a minimum period of three financial years;
3. decides that, pursuant to this authorization, the total grant of the Company's existing shares or shares to be issued may not exceed 1,500,000 shares (*i.e.*, less than 2% of the share capital at the date of this annual general meeting). This limit is fixed without taking into account the adjustments that may be made to preserve the rights of holders of securities giving

access to shares in the Company, in accordance with the applicable legal and regulatory provisions or any contractual provisions;

4. decides that the Board of Directors shall determine, under the conditions required by law, at the time of each grant:

   (i) the vesting period of the granted shares, which shall last at least one year, and

   (ii) the lock-up period for grantees following the vesting of the shares, which for all or some of the shares shall be a minimum of one year, with the exception of shares with a vesting period of at least two years, for which the lock-up period can be eliminated or shortened;

5. decides that the shares awarded to grantees will vest before the end of the aforementioned vesting period in the event of second or third category disability within the meaning of article L. 341-4 of the French Social Security Code (*Code de la sécurité sociale*), and that in the event of the grantee's death, his or her heirs may request the vesting of the shares within six months of the date of death; these shares will be freely transferable;

6. decides that the existing shares that can be granted pursuant to this resolution shall be acquired by the Company, either within the framework of article L. 225-208 of the French Commercial Code, or, if applicable, through the share buyback program authorized by the annual general meeting pursuant to article L. 225-209 of said code;

7. acknowledges that in the event of an issue of free shares, this authorization shall entail a capital increase at the end of the vesting period through incorporation of reserves, profits or premiums in favor of the grantees and a waiver by the shareholders of (i) their preferential subscription rights to the shares that will be issued in the course of the vesting of the shares, (ii) any right to the free shares granted on the basis of this delegation of authority, and (iii) any right to the amount of the reserves and premiums against which, if applicable, the issuance of the new shares shall be charged;

8. grants full powers to the Board of Directors, or any person duly authorized under the conditions set by law to act on its behalf within the abovementioned limits, to implement this authorization and in particular to:

   (i) determine whether the free shares being granted exist or must be issued,

   (ii) determine the identity of the grantees or the category or categories of grantees, the grant criteria, the number of shares granted to each of them, the terms and conditions for the share grant and, in particular, the vesting and lock-up periods,

   (iii) define the performance criteria, in particular for the shares granted to eligible executive officers of the Company and Executive Committee members,

   (iv) for the free shares granted to eligible executive officers of the Company, decide either that they cannot be sold by the interested parties before they cease to hold office, or stipulate the quantity of free shares that they are required to hold in registered form until they cease to hold office,

   (v) determine, under the conditions defined by law and within legal limits, the dates on which the free shares shall be granted,

   (vi) decide on the newly issued shares' dividend entitlement date, even if retroactive,

   (vii) decide on the conditions under which the number of free shares granted shall be adjusted, and

   (viii) more generally, with the possibility to sub-delegate such powers under the conditions set by law, enter into agreements, draw up documents, record capital increases following the vesting of shares, make any necessary amendments to the Articles of Association, perform all formalities, make all required declarations and do whatever is otherwise necessary.

Each year, the Board of Directors shall inform the ordinary general meeting of each grant made pursuant to this resolution, in accordance with article L. 225-197-4 of the French Commercial Code.

The annual general meeting decides that this authorization is granted for a period of thirty-eight (38) months from the date of this annual general meeting. It renders ineffective the unused portion of any prior delegation of authority granted for the same purpose and in particular that given by the annual general meeting of 7 June 2016 in its 17th resolution.

Fourteenth resolution

(Powers to carry out formalities)

The annual general meeting grants full powers to the bearer of an original, a copy or an excerpt of the minutes of this annual general meeting for the purposes of performing all filing, publicity or other formalities that may be required.

7.3 BOARD OF DIRECTORS' REPORT ON THE RESOLUTIONS SUBMITTED TO THE ANNUAL GENERAL MEETING OF 21 MAY 2019

The Board of Directors proposes to submit the resolutions described below to the vote of the shareholders at the annual general meeting of 21 May 2019.

RESOLUTIONS SUBMITTED TO THE ORDINARY GENERAL MEETING

Approval of the annual financial statements (1st and 2nd resolutions)

The purpose of the **1st and 2nd resolutions** is to approve the Company's financial statements and the Group's consolidated financial statements for the year ended 31 December 2018, respectively.

In the **1st resolution**, the Board recommends that you approve the Company's financial statements for the year ended 31 December 2018 as presented in the Board of Directors' management report, as well as all the transactions reflected or described therein. You are also asked to acknowledge that no expenses or charges referred to in article 39-4 of the French Tax Code were incurred during the past financial year. In the **2nd resolution**, in accordance with the provisions of article L. 225-100 of the French Commercial Code, the Board recommends that you approve the consolidated financial statements for the year ended 31 December 2018, as well as all the transactions reflected or described therein.

Allocation of profit and distribution of dividends (3rd resolution)

The purpose of the **3rd resolution** is to decide the allocation of the Company's profit for the year ended 31 December 2018 of €521,930,576.54, as presented in the Company's financial statements, plus prior retained earnings of €1,548,709,753.43 and a legal reserve surplus of €24,386,278.27. The Board of Directors recommends that the profit be allocated as follows:

Source	
Profit for the period	€521,930,576.54
Prior retained earnings	€1,548,709,753.43
Legal reserve surplus (1)	€24,386,278.27
Distributable profit	€2,095,026,608.24

Allocation	
Dividend distribution (2)	€191,453,730
Retained earnings	€1,903,572,878.24

(1) Portion of the legal reserve that exceeds 10% of the share capital at 31 December 2018.

(2) The total dividend distribution is calculated on the basis of the number of shares carrying dividend rights at 1 January 2018 and existing on the date of the Board of Directors' meeting adopting the proposed resolution and therefore granting dividend rights. The total may vary if the number of shares carrying dividend rights changes up to the ex-dividend date depending, for example, on the number of treasury shares held by the Company.

The payment of the dividend of €191,453,730 with regard to the 76,581,492 shares carrying dividend rights at 1 January 2018 and existing on the date of the Board of Directors' meeting adopting the proposed resolutions, would correspond to a distribution of two euros and fifty cents (€2.50) per share.

The shares would be traded ex-dividend as of 27 May 2019 and the dividend for the 2018 financial year would be paid on 29 May 2019.

The dividend would be eligible for the 40% tax relief available to individual shareholders domiciled for tax purposes in France as provided for in article 158.3-2° of the French Tax Code.

The dividend paid for the last three financial years was as follows:

Financial year	2018	2017	2016
Net dividend per share *(in euros)*	2.50 (1)	2,30 (1)	2,05 (1)

(1) Eligible in full for the 40% tax relief available to individual shareholders domiciled for tax purposes in France as provided for in article 158.3-2° of the French Tax Code.

The distribution of this two euros and fifty cents (€2.50) per share dividend would represent around 9% increase compared to the previous year and would reaffirm the importance of dividends as a key component of the Group's shareholder return policy. The recommendation takes into account the Company's performance in 2018 and reflects the Board of Directors' confidence in the Group's developments prospects and its solid cash flow generation and balance sheet.

Approval of the agreements and commitments referred to in articles L. 225-38 *et seq.* of the French Commercial Code (4th resolution)

In accordance with the law, the Board of Directors performed its annual review of agreements entered into and authorized during previous years and implemented in the year ended 31 December 2018. It noted that (i) the only agreement entered into and authorized during previous years and implemented in the year ended 31 December 2018 is the commitment related to the early termination of the Chairman and Chief Executive Officer's term of office, and that (ii) no new agreements or commitments that had not already received the approval of the annual general meeting were entered into during the 2018 financial year. In the **4th resolution**, you are invited to duly note the information relating to the agreements entered into and the commitments made during the 2018 financial year and prior financial years and approved by the annual general meeting, as set out in the statutory auditors' special report in section 7.1 of this chapter.

Composition of the Board of Directors: reappointments and appointments (5th to 8th resolutions)

At its meeting on 3 April 2019, the Board of Directors noted that the terms of office of Victoire de Margerie, Hélène Moreau-Leroy and Laurent Mignon as directors and François Enaud as senior independent director were due to expire at the close of the annual general meeting of 21 May 2019. The Board of Directors would like to extend its warmest thanks to François Enaud for his support during the different steps in the Group's transformation and for his active contribution to the work of the Board of Directors and of the Nominating, Compensation and Corporate Governance Committee, as well as his role as senior independent director.

Consequently, in the **5th to 8th resolutions**, the Board of Directors, on the recommendation of the Nominating, Compensation and Corporate Governance Committee, recommends the following reappointments and appointment.

At the close of the annual general meeting, and subject to approval of these resolutions, six of the thirteen members of the Board of Directors would be women, *i.e.* 42% (excluding the director representing employees).

Reappointment of Victoire de Margerie, Hélène Moreau-Leroy and Laurent Mignon as members of the Board of Directors (5th to 7th resolutions)

In the **5th to 7th resolutions**, the Board of Directors recommends that you reappoint Victoire de Margerie, Hélène Moreau-Leroy and Laurent Mignon as directors for a term of four (4) years expiring at the close of the annual general meeting to be held in 2023 to approve the financial statements for the financial year ending 31 December 2022.

Victoire de Margerie is an independent director and a member of the Nominating, Compensation and Corporate Governance Committee. In 2018, she attended all six meetings of the Board of Directors, and two of the three meetings of the Nominating, Compensation and Corporate Governance Committee.

Hélène Moreau-Leroy is an independent director and a member of the Audit and Accounts Committee. In 2018, she attended all six meetings of the Board of Directors and all six meetings of the Audit and Accounts Committee.

Laurent Mignon is a director. In 2018, he attented all six meetings of the Board of Directors.

Since the beginning of 2019, these directors have attended all three meetings of the Board of Directors, together with all meetings of the Committees of which they are members, if any (one meeting of the Audit and Accounts Committee and two meetings of the Nominating, Compensation and Corporate Governance Committee).

These reappointments would allow the Board of Directors to further benefit from their experience as high level executives in the chemical and industry sectors for the first two and as executive in a major banking and insurance group for the third, and their knowledge of Arkema and its major priorities.

The education and professional experience of Victoire de Margerie, Hélène Moreau-Leroy and Laurent Mignon are set out in section 3.2.1.3 of this document.

Appointment of Ian Hudson as member of the Board of Directors (8th resolution)

In the **8th resolution**, the Board of Directors recommends that you appoint Ian Hudson as a director for a term of four (4) years expiring at the close of the annual general meeting to be held in 2023 to approve the financial statements for the financial year ending 31 December 2022.

Ian Hudson will qualify as an independent director. His appointment would allow the Board of Directors to benefit from his experience as an executive in the chemicals industry.

Subject to his appointment by the annual general meeting, the Board of Directors decided to appoint Ian Hudson as member of the Audit and Accounts Committee.

Born in 1957, Ian Hudson graduated from Oxford University with a Master's degree in French and German.

He started his career with ICI, a former UK-based multinational specialized in chemicals and related industries. In 1998, he joined DuPont de Nemours, where he held a number of management roles over 17 years. He retired in 2016 after serving as President of DuPont Europe, Middle East & Africa for 10 years. He was a member of the Executive Committee and Board of the European Chemical Industry Association (CEFIC) and EuropaBio, as well as a member of the Foundation Board of the International Institute for Management Development (IMD) and a member of the Board of the Swiss-American Chamber of Commerce. Ian Hudson has been Chairman of the Board of Directors of Carbios since 2019.

Approval of the principles and criteria for setting, allocating and awarding the fixed, variable and exceptional components of the total compensation and benefits of any kind to be awarded to the Chairman and Chief Executive Officer (9th resolution)

In the **9th resolution**, and in accordance with article L. 225-37-2 of the French Commercial Code, the Board of Directors recommends that you approve the principles and criteria for setting, allocating and awarding the fixed, variable and exceptional components of the total compensation and benefits of any kind to be awarded, in the exercise of his term of office, to the Chairman and Chief Executive Officer as defined by the Board of Directors on the recommendation of the Nominating, Compensation and Corporate Governance Committee and presented in the report on corporate governance provided for in article L. 225-37 of said code.

The components of the compensation of the Chairman and Chief Executive Officer and the related allocation criteria are determined upon each renewal of his term of office, for the full term of office, by the Board of Directors. Accordingly, they were determined at the Board of Directors' meeting of 2 March 2016, at the time of the renewal of Thierry Le Hénaff's term of office as Chairman and Chief Executive Officer by the annual general meeting of 7 June 2016, and presented during this meeting as part of the submission to shareholder approval of his reappointment as a director. They were re-submitted unchanged from 2017 to the annual general meeting of 18 May 2018, in accordance with article L. 225-37-2 of the French Commercial Code, and are set out in details in section 3.4.2.1 of this document.

Approval of the components of compensation due or awarded to each of the Company's executive directors for the year ended 31 December 2018 (10th resolution)

Pursuant to article L. 225-100 of the French Commercial Code, the purpose of the **10th resolution** is to submit to the approval of shareholders the components of compensation due or awarded to each of the Company's executive directors for the financial year ended 31 December 2018. Payment of the annual variable compensation due for the past financial year is subject to the approval of this resolution.

The Board of Directors recommends that you approve the components of the fixed, variable and exceptional compensation and benefits of any kind due or awarded for the year ended 31 December 2018 to Thierry Le Hénaff, Chairman and Chief Executive Officer and the only Executive Director of the Company. These components are set out in detail in section 3.4.2.2 of this document.

Share buyback (11th resolution)

Until 31 January 2019, the Company acquired 547,642 shares in the Company under the authorization to trade in the Company's shares granted by the 14th resolution of the annual general meeting of 18 May 2018. The shares were purchased to cover employee free share plans and ensure that performance shares could be awarded without a dilutive effect on the share capital.

As the authorization granted to the Board of Directors by the annual general meeting of 18 May 2018 is due to expire shortly, in the **11th resolution**, the Board of Directors recommends that you renew its authorization to purchase or arrange to have purchased shares in the Company at any time for a period of eighteen (18) months, **except during a takeover bid** for the Company's shares, at a maximum price of **€135** per share. The maximum amount that may be dedicated to this share buyback program would be €135 million.

This authorization would enable the Board of Directors to acquire a number of shares **representing up to 10% of the Company's share capital**.

These share purchases could be made for any purpose permitted by law, and would primarily be allocated for the purpose of covering the Company's employee performance share plans.

This new authorization would render ineffective, from the date of this general meeting, the unused portion of the 14th resolution of the annual general meeting of 18 May 2018.

Details of share buyback programs in progress or planned can be found in section 6.2.4 of this document.

RESOLUTIONS SUBMITTED TO THE EXTRAORDINARY GENERAL MEETING

Authorization granted to the Board of Directors to reduce the share capital by cancelling shares (12th resolution)

The Board of Directors recommends, in the **12th resolution**, that you renew the authorization granted by the annual general meeting of 23 May 2017, in accordance with the provisions of articles L. 225-209 *et seq.* of the French Commercial Code, to reduce the share capital, on one or more occasions, by cancelling all or some of the shares acquired under the share buyback authorization granted in the 11th resolution, up to a maximum of 10% of the Company's share capital for a period of twenty-four (24) months.

The Board of Directors recommends that you grant it full powers, or any person duly authorized under the conditions set by law to act on its behalf, to carry out the share capital reduction resulting from the cancellation of shares and the abovementioned allocation, and accordingly amend the Company's Articles of Association and carry out any necessary formalities.

The Board of Directors recommends that this authorization be granted for a period of twenty-four (24) months from the date of this annual general meeting. This new authorization would render ineffective, from the date of this annual general meeting, the prior authorization granted for the same purpose.

Authorization granted to the Board of Directors to award free shares in the Company (13th resolution)

The Board of Directors recommends, in the **13th resolution**, that you authorize it, in accordance with the provisions of articles L. 225-197-1 *et seq.* of the French Commercial Code, to grant existing shares or shares to be issued in the Company free of consideration, on one or more occasions. The grantees would be employees and eligible executive officers of the Company or of related companies or groups within the meaning of article L. 225-197-2 of the French Commercial Code.

The Board of Directors proposes that you decide that:

- the free shares granted to the eligible executive officers of the Company and Executive Committee members would be subject to at least two performance criteria (one internal criterion and one external criterion) decided by the Board of Directors, on the basis of which the number of vested shares would be determined. These criteria would be assessed over a minimum period of three financial years;
- the total number of the Company's existing shares or shares to be issued granted free of consideration pursuant to this authorization may not exceed 1,500,000 shares (i.e., less than 2% of the share capital). This limit would be fixed without taking into account the adjustments that may be made to preserve the rights of holders of securities giving access to shares in the Company, in accordance with the applicable legal and regulatory provisions or any contractual provisions;
- the Board of Directors would determine, under the conditions required by law, at the time of each grant: (i) the vesting period of the granted shares, which shall last at least one year and (ii) the lock-up period, which for all or some of the shares shall be a minimum of one year, with the exception of shares with a vesting period of at least two years, for which the lock-up period can be eliminated or shortened;
- the shares awarded to grantees would vest before the end of the aforementioned vesting period in the event of second or third category disability within the meaning of article L. 341-4 of the French Social Security Code, and in the event of the grantee's death, his or her heirs may request the vesting of the shares within six months of the date of death; these shares will be freely transferable; and
- the existing shares that can be granted pursuant to this resolution would be acquired by the Company, either within the framework of article L. 225-208 of the French Commercial Code, or, if applicable, through the share buyback program authorized by the annual general meeting pursuant to article L. 225-209 of said code.

The Board of Directors invites you to acknowledge that in the event of an issue of free shares, this authorization shall entail a capital increase at the end of the vesting period through the incorporation of reserves, profits or premiums in favor of the grantees and a waiver by the shareholders of (i) their preferential subscription rights to the shares that will be issued as the shares vest, (ii) any right to the free shares granted on the basis of this delegation of authority, and (iii) any right to the amount of the reserves and premiums against which, if applicable, the issuance of the new shares shall be charged.

The Board of Directors proposes that you grant it, or any person duly authorized under the conditions set by law to act on its behalf, full powers within the abovementioned limits, to implement this authorization and in particular to:

(i) determine whether the free shares being granted exist or must be issued;

(ii) determine the identity of the grantees or the category or categories of grantees, the grant criteria, the number of shares granted to each of them, the terms and conditions for the share grant and, in particular, the vesting and lockup periods;

(iii) define the performance criteria, in particular for the shares granted to eligible executive officers of the Company and Executive Committee members;

(iv) for the free shares granted to eligible executive officers of the Company, decide either that they cannot be sold by the interested parties before they cease to hold office, or stipulate the quantity of free shares that they are required to hold in registered form until they cease to hold office;

(v) determine, under the conditions defined by law and within legal limits, the dates on which the free shares shall be granted;

(vi) decide on the newly issued shares' dividend entitlement date, even if retroactive;

(vii) decide on the conditions under which the number of free shares granted shall be adjusted; and

(viii) more generally, with the possibility to sub-delegate such powers under the conditions set by law, enter into agreements, draw up documents, record capital increases following the vesting of shares, make any necessary amendments to the Articles of Association, perform all formalities, make all required declarations and do whatever is otherwise necessary.

Each year, the Board of Directors shall inform the ordinary general meeting of each grant made pursuant to this resolution, in accordance with article L. 225-197-4 of the French Commercial Code.

The Board of Directors recommends that this authorization be granted for a period of thirty-eight (38) months from the date of this annual general meeting. This new authorization would render ineffective, from the date of this annual general meeting, the prior authorization granted for the same purpose.

Details of the performance share plans put in place by the Board of Directors pursuant to the authorization granted to it at the annual general meeting of 7 June 2016 are provided in section 3.5 of this document.

Powers to carry out formalities

In the **14th resolution**, the Board of Directors recommends that you grant full powers to the bearer of a copy or an excerpt of the minutes of this annual general meeting for the purpose of performing all formalities that may be required.

This report contains the main provisions of the proposed resolutions. We ask that you consider issuing a favorable vote on these proposed resolutions.

The Board of Directors

7.4 STATUTORY AUDITORS' REPORT ON THE AUTHORIZATION TO REDUCE THE SHARE CAPITAL BY CANCELLING SHARES

This is a free translation into English of a report issued in French and is provided solely for the convenience of English speaking readers. This report should be read in conjunction with, and is construed in accordance with, French law and professional auditing standards applicable in France.

KPMG Audit
Département de KPMG S.A.

Tour Eqho
2, avenue Gambetta
92066 Paris-La Défense Cedex
775 726 417 R.C.S. Nanterre

Statutory auditor
Member of the Compagnie Régionale de Versailles

Ernst & Young Audit

Tour First
TSA 14444
92037 Paris-La Défense Cedex
S.A.S. à capital variable
344 366 315 R.C.S. Nanterre

Statutory auditor
Member of the Compagnie Régionale de Versailles

Arkema S.A.

Statutory auditors' report on the reduction in capital

Extraordinary shareholders' meeting of May 21, 2019, Twelfth resolution

To the Shareholders,

In our capacity as statutory auditors of your company and in compliance with article L. 225-209 of the French Commercial Code (*Code de commerce*) in respect of the reduction in capital by cancellation of repurchased shares, we hereby report on our assessment of the terms and conditions for the proposed reduction in capital.

Your Board of Directors requests that it be authorized, for a period of twenty-four months starting on the date the present shareholders' meeting, to proceed with the cancellation of shares the Company was authorized to repurchase, representing an amount not exceeding 10% of its total share capital, by periods of twenty-four months, by, in compliance with the article mentioned above.

We have performed those procedures which we considered necessary in accordance with the professional guidance issued by the French national auditing body (*Compagnie nationale des commissaires aux comptes*) for this type of engagement. These procedures consisted in verifying that the terms and conditions for the proposed reduction in capital, which should not compromise equality among the shareholders, are fair.

We have no matters to report as to the terms and conditions of the proposed reduction in capital.

Paris-La Défense, March 11, 2019

The statutory auditors

French original signed by

KPMG Audit

Department of KPMG S.A.

Bertrand Desbarrières
Partner

François Quédiniac
Partner

ERNST & YOUNG Audit

Denis Thibon
Partner

7.5 STATUTORY AUDITORS' REPORT ON THE AUTHORIZATION TO GRANT FREE SHARES

This is a free translation into English of a report issued in French and is provided solely for the convenience of English speaking readers. This report should be read in conjunction with, and is construed in accordance with, French law and professional auditing standards applicable in France.

KPMG Audit
Département de KPMG S.A.

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Statutory auditor
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Statutory auditor
Member of the Compagnie Régionale de Versailles

Statutory auditors' report on the authorization to allot free existing shares or shares to be issued

Extraordinary shareholders' meeting of May 21, 2019, Thirteenth resolution

To the Shareholders,

In our capacity as statutory auditors of your Company and in accordance with the terms of our engagement defined by article L.225-197-1 of the French Commercial Code (*Code de Commerce*), we present below our report on the project of authorization to allot free existing shares or shares to be issued to eligible salaried employees and Executive Directors of your Company or companies related to it, upon which you are requested to vote. The total number of shares likely to be allotted in the context of the present authorization, may not exceed more than 1,500,000 shares, representing less than 2% of the share capital of the Company.

Your Board of Directors proposes, on the basis of its report it be authorized, for a period of thirty eight months, to allot free existing shares or shares to be issued.

It is the responsibility of your Board of Directors to prepare a report on the proposed operation. Our role is to report, where applicable, our observations on the information provided to you on the proposed operation.

We have performed those procedures that we considered necessary to comply with the professional guidance issued by the French national auditing body (*Compagnie nationale des commissaires aux comptes*) relating to this assignment. These procedures consisted mainly in verifying that the proposed methods set out in the report of the Board of Directors comply with the legal provisions governing such operations.

We have no matters to report on the information given in the report of the Board of Directors relating to the proposed to authorize the allotment of free shares.

Paris-La Défense, March 11, 2019

The statutory auditors

French original signed by

KPMG Audit

Department of KPMG S.A.

Bertrand Desbarrières
Partner

François Quédiniac
Partner

ERNST & YOUNG Audit

Denis Thibon
Partner

7.6 SUPPLEMENTARY REPORT BY THE BOARD OF DIRECTORS ON THE USE MADE OF THE DELEGATION OF AUTHORITY GRANTED PURSUANT TO THE 16TH RESOLUTION OF THE ANNUAL GENERAL MEETING OF 7 JUNE 2016

This is a free translation into English of a report issued in French and is provided solely for the convenience of English speaking readers. This report should be read in conjunction with, and is construed in accordance with, French law and professional auditing standards applicable in France.

Supplementary report on the use made of the delegation of authority granted pursuant to the 16th resolution of the annual general meeting of 7 June 2016

The annual general meeting of 7 June 2016, in its 16th resolution, granted the Board of Directors the authority, in accordance with article L. 225-138-1 of the French Commercial Code, to carry out capital increases by issuing shares or securities giving access to shares in the Company, reserved for employees and former employees of the Company or related companies or groups within the meaning of article L. 225-180 of the French Commercial Code and article L. 3344-1 of the French Labor Code, who are members of a savings plan.

In accordance with the provisions of article R. 225-116 of the French Commercial Code, it is the Board of Directors' responsibility to prepare an additional report describing the final conditions of the transaction, the impact of the capital increase on a shareholder's situation and the theoretical impact on the current market price of the share.

I. Use by the Board of Directors of the delegation of authority granted by the annual general meeting of 7 June 2016 to carry out a capital increase reserved for employees who are members of a savings plan

In accordance with the aforementioned delegation of authority, and as part of the Board of Directors' objective to pursue a dynamic employee ownership policy, on 8 November 2017 the Board:

- approved the principle of a capital increase reserved for employees;
- set the maximum amount of the capital increase at €12 million; and
- delegated to the Chairman and chief executive officer the powers necessary to set the subscription price of the shares and the dates of the subscription period and to report the completion of the capital increases.

By a decision of 6 March 2018, the Chairman and chief executive officer used the aforementioned delegation of authority to set:

- the subscription price of the shares at €81.97. This price corresponds to the average of the opening prices for the 20 trading days prior to 6 March 2018, *i.e.*, €102.46 per share, reduced by a 20% discount and rounded up to the nearest tenth of a euro; and
- the subscription period from 9 to 22 March 2018 inclusive.

Following the subscriptions, the Chairman and Chief Executive Officer, by a decision of 25 April 2018, reported the completion of a capital increase for a nominal amount of €6,104,050 through the issue of 610,405 new shares with a par value of €10 each with effect from 26 April 2018. This share capital increase raised the Company's share capital from €758,705,060 to €764,809,110, divided into 76,480,911 fully paid-up shares. The share premium related to this share capital increase amounted to €43,930,847.85.

II. Impact of the capital increase on a shareholder's situation

The impact on the shareholding of a shareholder with a 1% stake in the Company's share capital prior to the issue (758,705 shares with a par value of €10) who did not subscribe to the issue, was as follows on the completion of the capital increase on 26 April 2018:

	Stake held by the shareholder as a % of share capital *(undiluted basis)*	**Stake held by the shareholder as a % of share capital** *(diluted basis)* (1)	**Number of shares** *(undiluted basis)*	**Number of shares** *(diluted basis)* (1)
Before the issue of the new shares resulting from the share capital increase	1%	0.98%	75,870,506	77,428,374
After the issue of the new shares resulting from the share capital increase	0.99%	0.97%	76,480,911	78,038,779

(1) Calculations are based on the assumption that all issued shares and securities grant access to share capital (stock options and free share awards).

III. Impact on the share of consolidated shareholders' equity and shareholders' equity of the Company for the holder of a share

The shareholding of a shareholder with a 1% stake in the Company's share capital prior to the issue and with a share of consolidated shareholders' equity of €44,741,300.77 (undiluted basis), *i.e.*, €58.97 per share, would increase to €44,880,569.68 or €59.15 per share as a result of the impact of the capital increase on consolidated shareholders' equity (based on accounting data at 31 December 2017).

(in euros)	**Share of consolidated shareholders' equity at 31 December 2017** *(undiluted basis)*	**Share of the Company's shareholders' equity at 31 December 2017** *(undiluted basis)*	**Share of consolidated shareholders' equity at 31 December 2017** *(diluted basis)* (1)	**Share of the Company's shareholders' equity at 31 December 2017** *(diluted basis)* (1)
Before the issue of the new shares resulting from the share capital increase	58.97	50.08	57.89	49.17
After the issue of the new shares resulting from the share capital increase	59.15	50.33	58.07	49.43

(1) Calculations are based on the assumption that all issued shares and securities grant access to share capital (stock options and free share awards).

IV. Theoretical impact of the capital increase on the market price of the share

The theoretical impact of the capital increase on the current market price of the share, based on the average of the opening trading prices for the 20 previous trading days and the subscription price, is as follows:

(in euros)	**Undiluted basis**	**Diluted basis** (1)
After the issue of 610,405 new shares	(0.16)	(0.16)

(1) Calculations are based on the assumption that all issued shares and securities grant access to share capital (stock options and free share awards).

Colombes, 2 May 2018

The Board of Directors

7.7 SUPPLEMENTARY REPORT BY THE STATUTORY AUDITORS ON THE CAPITAL INCREASE RESERVED FOR EMPLOYEES, WITHOUT PREFERENTIAL SUBSCRIPTION RIGHTS

This is a free translation into English of the statutory auditors' report issued in French and is provided solely for the convenience of English speaking readers. This report should be read in conjunction with, and construed in accordance with, French law and professional standards applicable in France.

KPMG Audit
Département de KPMG S.A.

Tour Eqho
2, avenue Gambetta
92066 Paris-La Défense Cedex

Statutory auditor
Member of the Compagnie Régionale de Versailles

Ernst & Young Audit

Tour First
TSA 14444
92037 Paris-La Défense Cedex
S.A.S. à capital variable
344 366 315 R.C.S. Nanterre

Statutory auditor
Member of the Compagnie Régionale de Versailles

Arkema S.A.

Registered office: 420, rue d'Estienne d'Orves - 92700 Colombes

Share capital: €764,809,110

Supplementary report of the statutory auditors on the capital increase without preferential subscription rights

Board of Directors' meeting of 2 May 2018

To the annual general meeting of Arkema

In our capacity as statutory auditors of your Company, and in accordance with the provisions of article R. 225-116 of the French Commercial Code (*Code de commerce*), we hereby provide a supplementary report to our report dated 11 March 2016 on the capital increase without preferential subscription rights, reserved for members of a company savings plan, which was authorized by the annual general meeting of 7 June 2016.

This capital increase was submitted to your approval in accordance with articles L. 225-129-6 of the French Commercial Code and L. 3332-18 *et seq.* of the French Labor Code *(Code du travail).*

This meeting authorized the Board of Directors to decide whether to proceed with such an operation within 26 months. Using this delegation of authority, at its meeting of 8 November 2017 the Board of Directors approved the principle of a capital increase reserved for employees for a maximum amount of €12,000,000, and delegated to the Chairman and Chief Executive Officer the necessary powers to set the subscription price of the shares and to complete the capital increase at the end of the subscription period.

Using the aforementioned delegation of authority and by a decision of 6 March 2018, the Chairman and Chief Executive Officer set the subscription price of the shares at €81.97. Following these subscriptions, the Chairman and Chief Executive Officer reported the completion of the capital increase by a decision of 25 April 2018, for an amount of €6,104,050 through the issue of 610,405 ordinary shares with a par value of €10 each and with a share premium of €43,930,847.85.

It is the responsibility of the Board of Directors to prepare a supplementary report in accordance with articles R. 225-115 and R. 225-116 of the French Commercial Code. It is our responsibility to express an opinion on whether the information taken from the financial statements is fairly presented, on the cancellation of preferential subscription rights and on various other information regarding the issue and provided in this report.

We performed the procedures that we considered necessary to comply with the professional guidance issued by the French Institute of statutory auditors (*Compagnie nationale des commissaires aux comptes*) for this type of engagement. These procedures consisted in particular in verifying:

- the fair presentation of the information taken from the annual and consolidated financial statements for the year ended 31 December 2017 and adopted by the Board of Directors. Our audit of these financial statements was carried out in accordance with French professional standards;
- the compliance of the terms and conditions of the transaction, with regard to the delegation of authority granted by the annual general meeting;
- the information provided in the supplementary report of the Board of Directors on the choice of factors used to determine the issue price and its final amount.

We have no matters to report regarding:

- the fair presentation of the information taken from these financial statements and provided in the supplementary report of the Board of Directors;
- the compliance of the terms and conditions of the transaction, with regard to the delegation of authority granted by the annual general meeting of 7 June 2016 and the information given to shareholders;
- the choice of factors used to determine the issue price and its final amount;
- the presentation of the impact on the situation of holders of shares or securities giving access to Company shares, assessed in relation to shareholders' equity on the market price of the share;
- the cancellation of the preferential subscription rights that you previously voted on.

Paris-La Défense, 20 June 2018

The statutory auditors

French original signed by

KPMG Audit

Department of KPMG S.A.

Bertrand Desbarrières
Partner

François Quédiniac
Partner

ERNST & YOUNG Audit

Denis Thibon
Partner

INFORMATION ABOUT THE REFERENCE DOCUMENT

8

The different parts constituting the annual financial report are identified in the table of contents by the pictogram AFR

8.1 PERSON RESPONSIBLE FOR THE REFERENCE DOCUMENT AND PERSONS RESPONSIBLE FOR AUDITING THE FINANCIAL STATEMENTS

8.1.1 Person responsible for the reference document

Thierry Le Hénaff, Chairman and Chief Executive Officer of Arkema.

8.1.2 Declaration by the person responsible for the reference document

"I hereby declare, having taken all reasonable care to ensure that such is the case, that the information in this reference document is, to the best of my knowledge, in accordance with the facts and contains no omission likely to affect its meaning.

I further declare that, to the best of my knowledge, (i) the financial statements have been prepared in accordance with the applicable accounting standards and give a true and fair view of the assets, liabilities, financial position and results of the Company and all of the companies included in the scope of consolidation, and (ii) the management report, consisting of the sections of this reference document listed in the cross-reference table on pages 354 and 355 of this reference document, includes a fair review of the development of the business, the results and the financial position of the Company and all of the companies included in the scope of consolidation as well as a description of the main risks and uncertainties to which they are exposed.

I have obtained a statement from the statutory auditors, KPMG Audit and Ernst & Young Audit, confirming that they have completed their work and verified information relating to the financial position and the financial statements contained in this reference document and that they have read the document in its entirety. Their statement does not contain any observations regarding this reference document."

Colombes, 10 April 2019

Thierry Le Hénaff

Chairman and Chief Executive Officer

8.1.3 Persons responsible for auditing the financial statements

Statutory auditor	Statutory auditor
KPMG Audit Department of KPMG S.A.	**Ernst & Young Audit**
Represented by Bertrand Desbarrières and François Quédiniac	Represented by Denis Thibon
Tour EQHO, 2, avenue Gambetta, CS 60055 92066 Paris-La Défense Cedex – France	Tour First, TSA 14444 92037 Paris-La Défense Cedex – France
Appointed at the annual general meeting of 15 May 2014. Current term expires following the annual general meeting to be held to approve the financial statements for the year ending 31 December 2019.	Appointed at the annual general meeting of 18 May 2018. Current term expires following the annual general meeting to be held to approve the financial statements for the year ending 31 December 2023.

Substitute statutory auditor	Substitute statutory auditor
KPMG Audit IS	None
2, rue Gambetta, 92400 Courbevoie – France	
Appointed at the annual general meeting of 15 May 2014. Current term expires following the annual general meeting to be held to approve the financial statements for the year ending 31 December 2019.	

8.2 PERSON RESPONSIBLE FOR THE INFORMATION

Questions concerning Arkema and its activities should be addressed to:

Sophie Fouillat, Vice-President, Investor Relations
Arkema
420, rue d'Estienne d'Orves – 92700 Colombes – France
Telephone: +33 (0)1 49 00 74 63

8.3 CONCORDANCE AND CROSS-REFERENCE TABLES

8.3.1 Incorporation by reference

Pursuant to article 28 of European Commission (EC) regulation no. 809/2004, this reference document incorporates by reference the following information:

- the consolidated financial statements and the statutory auditors' report related thereto, the annual financial statements and the statutory auditors' report related thereto, as well as the financial information included in the management report appearing respectively on pages 201 *et seq.*, 267 *et seq.*, and 340 of the reference document for the year ended 31 December 2017 granted visa number D.18-0216 by the *Autorité des marchés financiers* on 29 March 2018;
- the consolidated financial statements and the statutory auditors' report related thereto, the annual financial statements and the statutory auditors' report related thereto, as well as the financial information included in the management report appearing respectively on pages 207 *et seq.*, 271 *et seq.*, and 332 of the reference document for the year ended 31 December 2016 granted visa number D.17-0259 by the *Autorité des marchés financiers* on 30 March 2017.

8.3.2 Concordance table

Information required under Annex I of EC regulation no. 809/2004 of 29 April 2004		Reference document	
No.	**Heading**	**Reference**	**Page(s)**
1.	**Persons responsible**	**Chapter 8**	**348 - 349**
1.1.	Persons responsible for the information in the reference document	8.1.1	348
1.2.	Declaration by persons responsible for the reference document	8.1.2	348
2.	**Statutory auditors**	**8.1.3**	**348**
2.1.	Names and addresses of the Company's statutory auditors	8.1.3	348
2.2.	Statutory auditors having resigned, been removed or not reappointed during the period covered by the reference document	None	

Information required under Annex I of EC regulation no. 809/2004 of 29 April 2004		Reference document	
No.	**Heading**	**Reference**	**Page(s)**
10.	**Capital resources**	**5.1.8**	**217**
10.1.	Information on the Company's capital resources (short and long term)	5.1.8 and 5.1.9	217 - 219
10.2.	Source, amounts and description of the Company's cash flows	5.1.7	214
10.3.	Information on the Company's borrowing terms and funding structure	5.1.8.1	217
10.4.	Information on any restrictions on the use of capital resources that have materially affected, or could materially affect, directly or indirectly, the Company's operations	5.1.8.2	218
10.5.	Information on anticipated sources of funds required to honor principal future investments and significant property, plant and equipment expenses	2.1.7	68
11.	**Research and development, patents and licenses**	**1.1**	**34 - 41**
12.	**Trend information**	**5.2**	**220**
12.1.	Principal trends in production, sales, inventory, costs and selling prices from the end of the last financial year up to the date of the reference document	5.2.1	220
12.2.	Known trends, uncertainties, demands, commitments or events that could materially affect the Company's outlook for at least the current financial year	5.2	220
13.	**Profit forecasts or estimates**	**None**	
14.	**Administrative, management and supervisory bodies and executive management**	**3.2**	**81 - 96**
14.1.	Names, business addresses, functions and main activities outside the issuing company of (a) members of the administrative, management or supervisory bodies; (b) partners with unlimited liability, in the case of a limited partnership with a share capital (*société en commandite par actions*); (c) founders, if the company has been established for fewer than five years; and (d) any member of executive management who is relevant to establishing that the issuing company has the appropriate expertise and experience for the management of the issuer's business. The nature of any family ties between any of those persons. In the case of each member of the administrative, management or supervisory bodies and each person mentioned in points (b) and (d) of the first subparagraph, details of that person's relevant management expertise and experience and (a) the names of all companies and partnerships of which such person has been a member of the administrative, management or supervisory bodies or partner at any time in the previous five years; (b) any convictions for fraud for at least the previous five years; (c) details of any bankruptcies, receiverships or liquidations for at least the previous five years; (d) details of any offense and/or official public sanction of such person by statutory or regulatory authorities and whether such person has ever been prohibited by a court of law from serving as a member of the administrative, management or supervisory bodies of an issuer or from participating in the management or governance of any issuer's business for at least the previous five years	3.2.1.2	84
14.2.	Conflicts of interest, commitments related to appointments, restrictions on the transfer of holdings in the Company's share capital	3.2.1.1, 3.2.1.2 and 3.2.3	81, 84 and 95
15.	**Compensation and benefits**	**3.4**	**106 - 118**
15.1.	Compensation paid and benefits in kind granted by the Company and its subsidiaries	3.4	106
15.2.	Total amounts set aside or accrued by the Company or its subsidiaries to provide pension, retirement or similar benefits	3.4.1, 3.4.2, 3.4.3 and note 19 to the consolidated financial statements	107 - 117 and 265
16.	**Operating procedures of administrative and management bodies**	**3.2 and 3.3**	**81 - 106**
16.1.	Expiration date of the current term of office and the period during which the person has served	3.2.1.2	84
16.2.	Members of the administrative, management or supervisory bodies' service contracts with the Company or its subsidiaries, providing for benefits upon termination or an appropriate negative statement	3.2.3.4	96
16.3.	Information on the Company's Audit Committee and Compensation Committee	3.3.4.1 and 3.3.4.2	103 - 106

Information required under Annex I of EC regulation no. 809/2004 of 29 April 2004		Reference document	
No.	**Heading**	**Reference**	**Page(s)**
16.4.	Statement of compliance with the corporate governance regime in force in France	3.1	80 - 81
17.	**Employees**	**4.4**	**164 - 186**
17.1.	Number of employees at the end of each period covered by the historical financial information and breakdown of employees by main activity and location	4.4.1	165
17.2.	Shareholdings and stock options	4.4.1.2 and 6.2.6	165 and 317
17.3.	Arrangements for involving employees in the capital of the Company	4.4.1.2 and 6.2.7	165 and 317
18.	**Major shareholders**	**6.3**	**318 - 320**
18.1.	The name of any person other than a member of the administrative, management or supervisory bodies who, directly or indirectly, has an interest in the Company's capital or voting rights which is notifiable under the Company's national law, together with the amount of each such person's interest or, if there are no such persons, an appropriate negative statement	6.3.1	318
18.2.	Different voting rights or an appropriate negative statement	6.3.3	319
18.3.	Direct or indirect ownership or control over the Company	6.3.2	318
18.4.	Any arrangements, known to the Company, the operation of which may at a subsequent date result in a change in its control	6.3.2	318
19.	**Related-party transactions**	**6.1.3**	**312**
20.	**Financial information concerning the Company's assets and liabilities, financial position and profits and losses**	**5.3 and 5.4**	**221 - 308**
20.1.	Historical financial information	Profile, ambition and strategy and 8.3.1	6 and 349
20.2.	Pro forma financial information	None	
20.3.	Financial statements	5.3.2 and 5.4.2	226 and 291
20.4.	Auditing of historical annual financial information	5.3.1 and 5.4.1	221 and 287
20.4.1.	Statement that the historical financial information has been audited	5.3.1 and 5.4.1	221 and 287
20.4.2.	Other information in the reference document audited by the statutory auditors	None	
20.4.3.	Source of unaudited financial data in the reference document not extracted from the Company's audited financial statements	None	
20.5.	Date of the latest audited financial information	5.3.2 and 5.4.2	226 and 291
20.6.	Interim and other financial information	None	
20.6.1.	Quarterly or half-yearly financial information published since the last financial statements and, where appropriate, the audit or review report	None	
20.6.2.	Interim audited or unaudited financial information, covering at least the first six months of the financial year if the reference document is dated more than nine months after the last audited financial year	None	
20.7.	Dividend policy	6.4.6	324
20.7.1.	Dividend per share	6.4.6	324
20.8.	Legal and arbitration proceedings	2.1 and note 20.2 to the consolidated financial statements	58 and 267
20.9.	Significant change in the financial or trading position	None	
21.	**Additional information**	**Chapter 6**	**309 - 328**
21.1.	Share capital	6.2.1	312
21.1.1.	The amount of issued capital, the number of shares authorized, the number of shares issued and fully paid, the number of shares issued but not fully paid, the par value per share and a reconciliation of the number of outstanding shares at the beginning and end of the year	6.2.1	312
21.1.2.	The number and main characteristics of any shares not representing capital	None	

Information required under Annex I of EC regulation no. 809/2004 of 29 April 2004		Reference document	
No.	**Heading**	**Reference**	**Page(s)**
21.1.3.	The number, book value and par value of shares held by the Company, on behalf of the Company or by subsidiaries of the Company	6.2.4	313
21.1.4.	Convertible securities, exchangeable securities or securities with warrants	6.2.6	317
21.1.5.	Information about and terms of any acquisition rights or obligations over authorized but unissued capital or an undertaking to increase the capital	None	
21.1.6.	Information about the capital of any member of the Group which is under option or agreed conditionally or unconditionally to be put under option	None	
21.1.7.	History of share capital for the period covered by the historical financial information	6.2.2	313
21.2.	Memorandum and Articles of Association	6.1.1 and 6.5	310 and 325
21.2.1.	Company purpose	6.1.1	310
21.2.2.	Provisions of the Company's Memorandum, Articles of Association, charter or bylaws concerning the members of administrative, management and supervisory bodies	3.2 and 3.3	81 and 96
21.2.3.	Rights, preferential rights and restrictions attaching to each class of existing shares	6.5.4	327
21.2.4.	Action necessary to change shareholder rights	6.5.2	326
21.2.5.	Conditions, including conditions of admission, governing the manner in which annual general meetings and extraordinary general meetings are called	6.5.1	325
21.2.6.	Provisions of the Company's Memorandum, Articles of Association, charter or bylaws that would have an effect of delaying, deferring or preventing a change in control	6.5.2	326
21.2.7.	Provisions of the Company's Memorandum, Articles of Association, charter or bylaws governing the ownership threshold above which shareholdings must be disclosed	6.5.6 and 6.5.7	327 and 328
21.2.8.	Conditions imposed by the Company's Memorandum, Articles of Association, charter or bylaws governing changes in the capital, where such conditions are stricter than is required by law	None	
22.	**Material contracts**	**1.4**	**56**
23.	**Third-party information, statements by experts and declarations of interest**	**None**	
24.	**Documents on display**	**6.1.1**	**310**
25.	**Information on investments**	**5.3.2, 5.4.2 and 6.1.2**	**226, 291 and 311**

8.3.3 Cross-reference table

This reference document includes all the items of the Company and Group management report as required by articles L. 225-100 and L.225-100-1 of the French Commercial Code (*Code de Commerce*), as amended by Order 2018-727 of 10 August 2018, articles L. 232-1 II, L. 233-16, L. 233-26 and R. 225-102, as well as article L.225-102-1 as amended by Order 2018-938 of 30 October 2018 providing for the integration of CSR performance reporting, articles L. 225-102-2, R. 225-105, R. 225-105-1 and L.225-102-4 providing for the creation and deployment of a duty of care plan (I). It also contains all the information of the annual financial report referred to in article L. 451-1-2 of the French Monetary and Financial Code (*Code monétaire et financier*) and article 222-3 of the AMF general regulations (II).

In order to facilitate the reading of the management report and the annual financial report mentioned above, the following cross-reference table has been prepared to identify the sections constituting these reports.

The cross-reference table also helps to identify the required information in the Board of Directors' report on corporate governance pursuant to articles L. 225-37, L. 225-37-3, and L. 225-37-4 of the French Commercial Code, as amended and created respectively by Order no. 2018-771 of 5 September 2018 and article L. 225-37-5 of the same code (III).

Finally, the cross-reference table lists other reports prepared by the Board of Directors or the statutory auditors (IV).

No.	Information	Reference
I	**MANAGEMENT REPORT**	
1	Position and activity of the Company and, where applicable, its subsidiaries and companies under its control, over the past financial year	1.2
2	Results of operations of the Company, its subsidiaries and companies under its control	5.1.5
3	Key financial and non-financial (CSR) performance indicators relating to the Company's and the Group's specific businesses	Profile, ambition and strategy
4	Review of the business, results of operations and financial position (notably debt)	5.1 and 5.2
5	Description of main risks and uncertainties (including the Company's exposure to financial and market risks)	2.1
6	Notes on the use of financial instruments and the Company's financial and market risk management policies and objectives	2.1.7
7	Significant events that have occurred since the end of the reporting period	Note 31 to the consolidated financial statements
8	Planned development	5.2
9	Research and development activities	1.1
10	Existing branches	Not applicable
11	Review of employee profit sharing and of stock options and free shares granted to employees	6.3.4
12	Transactions by executives in the Company's securities	3.4.4
13	CSR performance reporting pursuant to the provisions of article L. 225-102-1 of the French Commercial Code	4.1.2
14	Shareholdings in companies with registered offices in France and representing over 1/20, 1/10, 1/5, 1/3, 1/2 or 2/3 of these companies' capital or voting rights	6.1.2 and note D to the consolidated financial statements
15	Transfer or disposal of shares undertaken to regularize cross-shareholdings	Not applicable
16	Individual persons or corporate bodies holding directly or indirectly over 1/20, 1/10, 3/20, 1/5, 1/4, 1/3, 1/2, 2/3, 18/20 or 19/20 of the Company's share capital or voting rights at general shareholders' meetings	6.3.1, 6.3.2, 6.3.5 and 6.3.6
17	Injunctions or fines for antitrust practices	2.1 and note 20.2.2 to the consolidated financial statements
18	Calculation and results of adjustment of conversion bases or of exercising of securities giving access to capital and stock subscription or purchase options	3.5.2 and 6.2.6
19	Information on share buyback programs	6.2.4
20	Five-year financial summary	5.4.5

No.	Information	Reference
21	Dividends paid during the last three financial years and dividends eligible for the 40% tax rebate	6.4.7
22	Loans of less than two years granted by the Company, outside the scope of its main business activities, to micro-enterprises, SMEs or intermediate-sized enterprises and justified by the economic relations it has with the entities	Not applicable
23	Information on non-tax-deductible sumptuary expenses (article 223 *quater* of the French General Tax Code [*Code général des impôts*])	None (see 7.2.2)
24	Details of trade payables and receivables (article D. 441-4 of the French Commercial Code)	5.4.4
25	Information on financial risks linked to climate change and measures taken by the Company to reduce them	2.1.3
26	Internal control and risk management procedures put in place by the Company, in particular those relating to the preparation and processing of accounting and financial information	2.2
27	Information on the Company's technological accident risk prevention policy, its ability to insure its civil liability in terms of property and people due to its operations in classified facilities, and resources provided to oversee the processing of victim compensation in the event of a technological accident for which the Company can be held liable	2.1.1 and 2.2.6
28	"*Plan de vigilance*" (duty of care plan) pursuant to article L. 225-102-4 of the French Commercial Code	4.1.3
II	**ANNUAL FINANCIAL REPORT**	
1	Company financial statements	5.4.2 and 5.4.3
2	Consolidated financial statements	5.3.2 and 5.3.3
3	Statutory auditors' report on the parent company financial statements	5.4.1
4	Statutory auditors' report on the consolidated financial statements	5.3.1
5	Management report including, at minimum, the information mentioned in articles L. 225-100-1 and L. 225-211, paragraph 2, of the French Commercial Code	See I of this cross-reference table, and in particular sections 4, 5, 6, 7, 13, 16, 17 and III, 13 of this table
6	Statutory auditors' report on corporate governance prepared in accordance with article L. 225-37, last paragraph of the French Commercial Code	See III of this cross-reference table
7	Declarations by the persons responsible for the annual financial report	8.1.2
8	Statutory auditors' fees	Note 30 to the consolidated financial statements
9	Statutory auditors' report on corporate governance prepared in accordance with article L. 225-235 of the French Commercial Code	5.4.1
III	**BOARD OF DIRECTORS' REPORT ON CORPORATE GOVERNANCE**	
1	Composition of the Board of Directors and diversity policy implemented including the principle of gender balance	3.2.1.1 and 3.2.1.2
2	Conditions for the preparation and organization of the work of the Board of Directors	3.3.2 to 3.3.4
3	List of positions held and duties performed by each executive officer in all companies during the reporting period	3.2.1.2
4	Potential limitations imposed by the Board on the powers of the CEO	3.3.1
5	Agreements entered into between an executive officer or a significant shareholder and a Company subsidiary	Not applicable
6	Summary table showing the authorizations to increase the share capital currently in force	6.2.5
7	Company's management structure (only in the event of amendments)	Not applicable
8	Where a company voluntarily refers to a corporate governance code drawn up by business organizations: provisions that were disregarded and the reasons, as well as how the code may be consulted	3.1
9	Where applicable, the reasons for the Company disregarding all the provisions of a corporate governance code and rules respected in addition to the legal requirements	Not applicable

No.	Information	Reference
10	Specific conditions for shareholder participation in general shareholders' meetings or referral to the provisions of the Articles of Association that provide for these conditions	6.5.1 and 6.5.2
11	Presentation of draft resolutions relating to the compensation policy for executive officers	3.4.2.1
12	Total compensation and benefits in kind paid to each executive officer during the reporting period [(1)]	3.4.1 and 3.4.2
13	Commitments of any kind entered into by the Company in favor of its executive officers, corresponding to items of compensation, indemnities or benefits due or expected to be due as a result of the commencement, termination or change of duties or due post-termination, in particular pension commitments and other lifetime advantages	3.4.1 and 3.4.2
14	Factors likely to have an impact in the event of a public offering	
	Structure of the Company's capital	6.2.1 and 6.3.1
	Restrictions under the Articles of Association on the exercise of voting rights and share transfers, clauses of agreements brought to the Company's attention pursuant to article L. 233-11 of the French Commercial Code	6.5.2
	Direct or indirect interests in the Company's share capital, of which it is aware pursuant to articles L. 233-7 and L. 233-12 of the French Commercial Code	6.3.1, 6.3.2 and 6.3.4
	List and description of bearers of securities with special controlling rights	Not applicable
	Control mechanisms in place for an employee shareholding scheme where controlling rights are not exercised by the employees	Not applicable
	Agreements between shareholders of which the Company is aware and which can entail restrictions on the exercise of voting rights and share transfers	Not applicable
	Rules applicable to the appointment and replacement of members of the Board of Directors, and to amendments to the Company's Articles of Association	3.2.1.1, 3.2.3 and 3.3.2.2
	Powers of the Board of Directors, in particular regarding share issues and buybacks	3.3.1, 3.3.2.1, 5.2.4 and 6.2.5
	Company agreements which are amended or lapse in the event of a change of control [(2)]	1.4 and note 29.2 to the consolidated financial statements
	Compensation agreements for members of the Board of Directors or employees who resign or are made redundant without just cause or who are terminated as a result of a public offering	3.4.2.1 and 3.4.2.2
IV	**OTHER DOCUMENTS**	
1	Special report of the statutory auditors on related-party agreements and commitments	7.1
2	Proposed agenda for the annual general meeting of 21 May 2019	7.2.1
3	Proposed resolutions submitted to the annual general meeting of 21 May 2019	7.2.2
4	Board of Directors' report to the annual general meeting of 21 May 2019	7.3
5	Statutory auditors' report on the authorization to reduce the share capital through the cancellation of shares	7.4
6	Statutory auditors' report on the authorization to allot free existing shares or shares to be issued	7.5
7	Supplementary report by the Board of Directors on the use made of the delegation of authority granted pursuant to the 16th resolution of the annual general meeting of 7 June 2016	7.6
8	Supplementary report by the statutory auditors on the capital increase reserved for employees, without preferential subscription rights	7.7
9	Declaration that the social and environmental information required in the management report in respect of legal and regulatory commitments has been properly disclosed	4.5.6

(1) This includes compensation and employee benefits granted by the Company and its subsidiaries, including in the form of allocation of share capital, debt securities, or securities giving access to the Company's share capital. A distinction should be made between the fixed, variable and exceptional components making up these items of compensation and employee benefits, as well as the criteria used to calculate them or the circumstances in which they have been established.

(2) Except if this disclosure, other than where required by law, would have a significant negative impact on the Company's interests.

GLOSSARY

Term	Definition
Absolute indicator	An indicator expressed in absolute value (in tonnes of emissions, in millions of cubic meters or terawatt-hours of consumption).
Acrylic acid	An acid derived from propylene and mainly used as an intermediate in the preparation of superabsorbents and derivatives used in the manufacture of paints, inks and adhesives.
Acrylic esters	Acrylic acid esters.
Activated carbon	Processed charcoal used for its properties as an adsorption agent.
Adsorption	The retention of molecules of a gas or substance in solution or suspension on the surface of a solid.
AIMS	Arkema Integrated Management System, an audit system that includes the Group's own requirements as well as those featured in standards endorsed by the Group, such as ISO 9001, ISO 14001 and OHSAS 18001. In order to obtain external certifications, AIMS audits are conducted by mixed teams made up of Group auditors and auditors from a third-party accreditation body.
Amine	A compound obtained by substituting monovalent hydrocarbon radicals for one of the hydrogen atoms of ammonia.
CEFIC	The European Chemical Industry Council.
CO_2	Carbon dioxide.
COD	Chemical oxygen demand, a parameter for measuring water pollution by organic materials, the decomposition of which consumes oxygen.
CoRAP	The European Union's Community Rolling Action Plan, part of REACH.
Crosslinking	The process by which transverse bonds are created to change a linear polymer into a tridimensional polymer.
Debottlenecking	A modification made to an industrial facility in order to increase production capacity.
DMDS	Dimethyldisulfide.
EBITDA	Recurring operating income (REBIT) plus recurring depreciation and amortization of property, plant and equipment and intangible assets, the computation of which is detailed in note C.1 to the consolidated financial statements in this document.
EBITDA to cash conversion rate	Free cash flow excluding exceptional capital expenditure, divided by EBITDA; the computation of which is detailed in note C.1 to the consolidated financial statements in this document.
EC regulation 1107/2009	Regulation (EC) no. 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the authorization, commercialization, use and control of plant protection products within the European Community.
ECHA	The European Chemicals Agency, which is responsible for overseeing the REACH system.
EFPI (Environmental Footprint Performance Indicator)	The relative indicator used by the Group to offset the impact of changes in production scope or volume and to monitor changes in its environmental performance with respect to the Group's 2025 targets compared with 2012.
Elastic bonding	Elastomeric adhesive technology used primarily in hardwood flooring, transportation, assembly and flexible packaging applications.
Emulsions	Binders for paints, adhesives and varnishes produced by polymerization of monomers (acrylic, vinyl and other) and forming a stable dispersion in water of polymer particles which, coated and dried, form a continuous film.
Exceptional capital expenditure	A very limited number of investments that the Group presents separately in its financial reporting due to their unusual size or nature, the amounts of which are detailed in note C.1 to the consolidated financial statements in this document.
Free cash flow	Cash flow from operating and investing activities excluding the impact of portfolio management, the computation of which is detailed in note C.1 to the consolidated financial statements in this document.
GHG	Greenhouse gas.
GHS	The Globally Harmonized System of Classification and Labeling of Chemicals, a major United Nations initiative designed to replace the various chemical classification and labeling standards used in different countries with a global system based on consistent criteria.

Term	Definition
H_2S	Hydrogen sulfide.
HCFCs	Hydrochlorofluorocarbons.
HF	Hydrofluoric acid.
HFCs	Hydrofluorocarbons; Hydrogen-, carbon- and fluorine-based products that are mainly used in refrigeration as substitutes to chlorofluorocarbons (CFCs), following the introduction of the Montreal Protocol.
Hot melt PSA (Pressure-Sensitive Adhesives)	Pressure-sensitive hot melts.
Hot melts	Thermoplastic adhesives.
HPV	High Production Volume, an international ICCA program designed to deliver globally-harmonized data sets and initial hazard assessments for around 1,000 chemical substances.
Hydrazine hydrate	A nitrogen-, hydrogen- and water-based product used as an intermediate in agrochemicals, pharmaceuticals, chemical synthesis, water treatment and blowing agents for plastics and elastomers.
ICCA	The International Council of Chemical Associations.
Impact modifiers	Additives introduced into certain products, in particular PVC, to make them more impact-resistant.
Incentive scheme in France	A scheme set up to complement the profit-sharing plans required under French law in all of the Group's companies in France. It gives all employees a share of Group profits and provides incentives to meet certain performance objectives that promote the Group's growth. Schemes vary from subsidiary to subsidiary but most are based on the same principles. Incentives consist of (i) a bonus based on economic results, and (ii) a performance bonus defined by each facility in line with its specific objectives.
Initiators	Products used to initiate chemical reactions.
Intensive indicator	An indicator of intensity relative to production volumes.
Interface agents	Products used in the formulation of additives.
IRT	*Institut de recherche technologique*, a French technological research institute.
ISO 14001	An international standard that defines the criteria for introducing an environmental management system in companies.
Kyoto Protocol	An international agreement, entered into by 84 countries on 11 December 1997 in Kyoto (Japan), which was intended to supplement the May 1992 United Nations Framework Convention on Climate Change (UNFCCC). The Kyoto Protocol entered into effect on 16 February 2005.
Mercaptans	Thio-alcohols and phenols.
Methyl methacrylate	An essential raw material in the manufacture of polymethyl methacrylate (PMMA) pellets and sheets for the automotive, construction and equipment industries. Methyl methacrylate is used not only in the manufacture of PMMA, but also in the fields of acrylic emulsions and plastic additives.
Molecular sieves	Synthesized mineral products used to purify liquids and gases by the selective adsorption of molecules.
Non-woven	Textiles whose fibers are aligned in a random fashion.
NOx	Nitrogen oxides.
ODP (Ozone Depletion Potential)	An index measuring the impact of a given mass of gas in terms of contribution to the depletion of the ozone layer, expressed in relation to the impact of a chlorofluorocarbon.
OECD	Organization for Economic Co-operation and Development.
Organic peroxides	Oxidizing organic products used as initiators for polymerization and as cross-linking agents.
Oxo alcohols	Alcohols derived from propylene and used as synthesis intermediates.
Oxygenated solvents	Substances such as alcohols, ketones and ethers that contain oxygen atoms and have the ability to dissolve other substances without modifying them chemically.
Photocure resins	Synthetic resins that harden under the effect of ultraviolet light.
PMMA	The ISO code for polymethyl methacrylate.
Polyamide	A polymer obtained by the reaction of a diacid on a diamine, or from the polymerization of a monomer with both an acid and an amine function.
Polyamide 10 (PA10), polyamide 11 (PA11) and polyamide 12 (PA12)	Thermoplastic polyamides, whose monomers have 10, 11 and 12 carbon atoms, respectively.
Polyethylene	A plastic obtained by the polymerization of ethylene.
Polymer modified binders	Adhesives based on hydraulic binders.

Term	Definition
Polymerization	The union of several molecules of one or more compounds (monomers) to form a large molecule.
Polymers	Products made by polymerization.
Polyphthalamide (PPA)	A thermoplastic material from the polyamide family, obtained by polymerization of aromatic diacids and aliphatic diamines, and characterized by a high melting point and high mechanical rigidity.
PPRT	Technological Risk Prevention Plan (*plan de prévention des risques technologiques*), a government-designed and implemented plan introduced by French Act no. 2003-699 of 30 July 2003 and the relevant application decrees, which strengthened the obligations imposed on companies operating Seveso sites in France. PPRTs aim to control urban development around potentially dangerous sites and to limit the impact of potential accidents.
Processing aids	Products that improve the processability of polymers during molding and extrusion.
PSE	Process safety events.
PTFE	The ISO code for polytetrafluoroethylene.
PVC	The ISO code for vinyl polychloride or polyvinyl chloride.
PVDF	The ISO code for polyvinylidene fluoride.
RCMS	The Responsible Care® Management System.
REACH (Registration, Evaluation and Authorization of Chemicals)	Regulation (EC) no. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the registration, evaluation, authorization and restriction of chemicals.
REBIT	Recurring operating income, the computation of which is detailed in note C.1 to the consolidated financial statements in this document.
REBIT margin	Recurring operating income as a percentage of sales, the computation of which is detailed in note C.1 to the consolidated financial statements in this document.
Responsible Care®	A voluntary initiative by the world chemical industry to achieve continuous progress in safety, health and environment, managed in France by the UIC under the name of *Engagement de progrès®* (Commitment to progress).
ROACE	Return on average capital employed (recurring operating income over average capital employed at the end of years Y and Y-1), the computation of which is detailed in note C.1 to the consolidated financial statements in this document.
SDGs	The Sustainable Development Goals, also known as the Global Goals, a United Nations worldwide initiative to end poverty, protect the planet and ensure peace and prosperity for all (UN definition).
SDS	Safety Data Sheet.
Sebacic acid	A diacid derived from castor oil, used as an intermediate in the manufacture of bio-based polymers, plastics, lubricants, and anti-corrosion agents.
Seveso III directive	European directive no. 2012/18/EU of 4 July 2012 on the control of major-accident hazards involving dangerous substances.
SO_2	Sulfur dioxide.
Sodium chlorate	Sodium salt used in the treatment of paper pulp, as an herbicide, or as a synthesis intermediate.
Sodium perchlorate	Sodium salt used as a synthesis intermediate.
SOx	Sulfur dioxides.
Spin-Off of Arkema's Businesses	The transaction that is the subject of the prospectus which received from the French financial markets authority (*Autorité des marchés financiers* – AMF) visa no. 06-106 on 5 April 2006.
SPOM	Suspended particulate organic matter present in water that can be recovered by physical or mechanical means, such as filtration and sedimentation.
Surfactants	Compounds that increase the spreading and wetting properties of a liquid by lowering its surface tension.
SVHC	Substance of Very High Concern, a chemical substance that has been placed on the candidate list for authorization under REACH.
UIC	*Union des industries chimiques* (Union of Chemical Industries). The professional body of the chemical industry in France.
Unsaturated polyesters	Esters with high molecular weights produced by the linking of numerous ester molecules that have double bonds between carbon atoms.
VOC	Volatile organic compound.

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