

SOCIAL RESPONSIBILITY

COMMUNICATION ON PROGRESS

EXTRACT FROM THE 2020 UNIVERSAL
REGISTRATION DOCUMENT

2020



ARKEMA
INNOVATIVE CHEMISTRY



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**SOCIAL
RESPONSIBILITY 2020**
COMMUNICATION ON PROGRESS

EXTRACT FROM THE 2020 UNIVERSAL REGISTRATION DOCUMENT



**BECOME A PURE
SPECIALTY
MATERIALS
PLAYER**

MESSAGE FROM THIERRY LE HÉNAFF

CHAIRMAN AND CHIEF EXECUTIVE OFFICER



Dear stakeholders,

I am pleased to renew Arkema's support for the UN Global Compact. Our commitment to this initiative and its 10 principles, together with the Responsible Care® initiative and the contribution to the SDGs, drive our sustainability approach and continuous improvement programs.

In the context of the sanitary crisis we face for more than a year, driving actions that benefit society has been more than ever a priority for Arkema. Thanks to the responsiveness and mobilization of our employees across the world, we were able to rapidly adapt and to continue manufacturing our products and serving our customers safely.

Arkema's strategy is underpinned by an objective to create sustainable value for our stakeholders, which the Group pursues through its corporate social responsibility approach.

Within this framework, in 2020 Arkema continued to develop sustainable solutions to meet such challenges as the lightweighting of materials, natural resources management and the development of new form of energies. The Group also decided to set itself the

ambitious objective of increasing to 65% the share of its sales that significantly contribute to the United Nations' Sustainable Development Goals by 2030, versus 50% currently.

To strengthen the Group's contribution to the environment, we have structured our approach to the circular economy considering the entire value chain, leveraging technical solutions as well as partnerships. Our action for the climate and last year adoption of a science-based target trajectory for our emissions extend with targets along the value chain, notably the commitment to influence our suppliers to adopt science-based targets on their own perimeter.

Arkema's commitment as a responsible manufacturer is reflected in its environmental performances aligned with the long-term targets, as well as in safety with a historically low total recordable injury rate in 2020 that has led us to revise our long-term target to a more ambitious level.

Finally, diversity is another strength that Arkema has set out to further reinforce within the Group, with a target to increase the proportion of women in senior management to 30% by 2030 and the proportion of non-French employees to 50%.

These demanding commitments and the progress made in CSR are recognized by customers and extra financial rating agencies. Arkema recent admission to the DJSI World index is an encouragement to continue and accelerate the full integration of sustainability together with our stakeholders, and to put our expertise and innovation at the service of a transition to a more sustainable world.

Building on this momentum, Arkema also announced the creation of a new committee of the Board of Directors, the Innovation and Sustainable Growth Committee, whose mission will be in particular to assess the contribution of Arkema's innovation and strategy to environmental challenges and sustainable growth.

This report details our ambitions, commitments and management systems in the field of Corporate Social Responsibility, as well as our achievements in this area.

I sincerely thank you for your continued support and valuable contribution to improving our sustainable performance.

Thierry Le Hénaff



PROFILE, AMBITION AND STRATEGY

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ARKEMA AT A GLANCE

Arkema is a major player in Specialty Materials whose business is structured around three coherent and complementary segments - Adhesive Solutions, Advanced Materials and Coating Solutions - as well as a competitive and well-positioned Intermediates segment. The Group has a leading industrial and commercial presence, and benefits from a balanced geographical sales split between Europe, North America and Asia.

 **€7.9** BN
2020
SALES

 **20,600**
EMPLOYEES

A PRESENCE IN

 **55** COUNTRIES

 **147** PRODUCTION
SITES

 **€600M** RECURRING AND
EXCEPTIONAL CAPITAL
EXPENDITURE

 **€241M** R&D
EXPENDITURE

 **158** PATENTS FILED RELATING
TO SUSTAINABLE
DEVELOPMENT

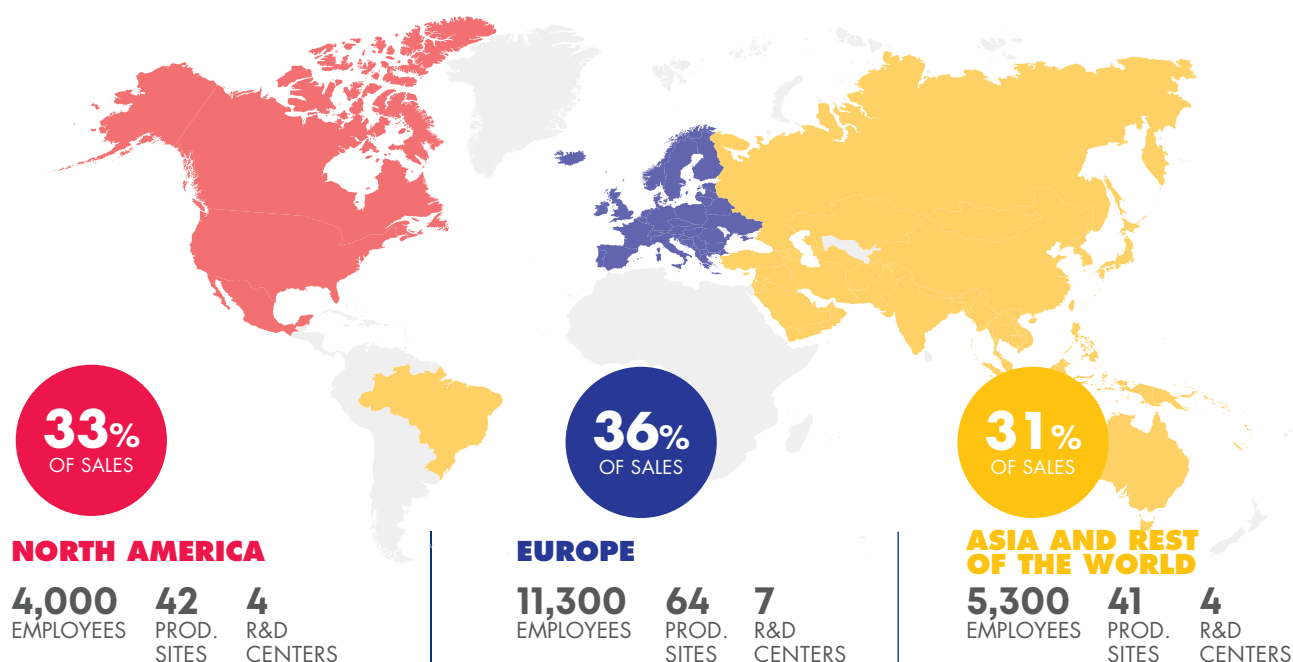
2020 Data.

Thanks to its innovative and sustainable solutions developed within its three business segments dedicated to Specialty Materials, Arkema contributes to addressing the major challenges arising from global megatrends such as increasing urbanization, resource scarcity, climate change and new technologies. 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 20,600 employees.

Drawing on its solid entrepreneurial culture, Arkema has engaged in an in-depth transformation of its profile to move toward resilient, higher value-added activities since its stock market listing in May 2006, and aims to become a pure Specialty Materials player by 2024. With this in mind, the Group will continue to build on its innovation drive for sustainable development, and will pursue its bolt-on acquisitions policy, particularly in Adhesive Solutions, as well as its industrial investments in high-growth regions. Moreover, Arkema will gradually reduce the share of its more volatile intermediate businesses.

A GLOBAL COMPANY



4 SEGMENTS

82%
OF 2020
SALES

SPECIALTY MATERIALS



ADHESIVE SOLUTIONS

€2.0bn

As one of the world leaders in adhesives, Bostik offers high value-added solutions for construction and building renovation, as well as for many industrial applications.



ADVANCED MATERIALS €2.55bn

This wide range of highly technical products and solutions allows to address the increasingly demanding requirements of our customers and support them in their search for innovative and sustainable solutions.



COATING SOLUTIONS €1.9bn

With a competitive upstream in acrylics, this range of high-performance solutions, dedicated in particular to the industrial coatings and decorative paints markets, meets customers' growing needs for solutions that are increasingly environmentally friendly.

18%
OF 2020
SALES

INTERMEDIATES



€1.45bn

These intermediate chemicals activities, with more volatile results, include PMMA, Fluorogases and Asia Acrylics, in which the Group has strong positions and high-quality assets. In December 2020, the Group announced the proposed divestment of its PMMA business to Trinseo ⁽¹⁾, which is expected to be finalized mid-2021.

(1) The proposed disposal is subject to the approval of the relevant antitrust authorities.

DIVERSIFIED END-MARKETS

Arkema offers innovative and sustainable solutions to meet the needs of its customers in diversified end-markets with attractive growth prospects.



1

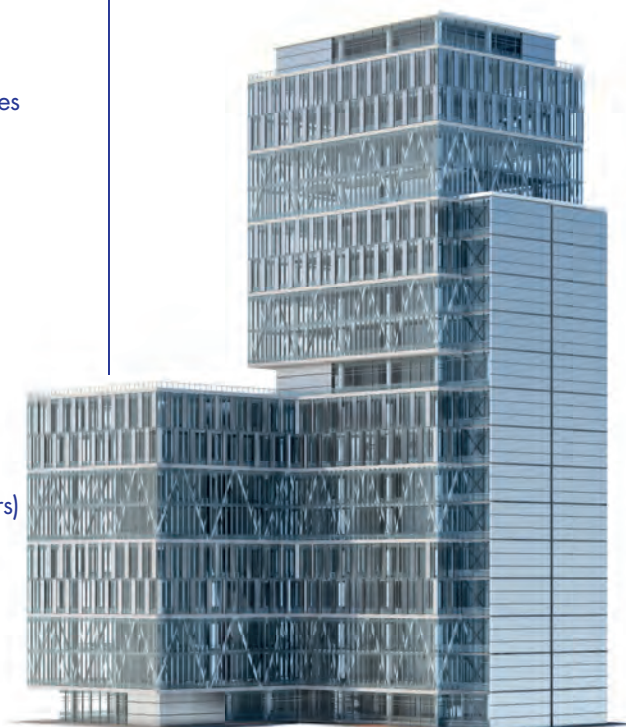
GENERAL INDUSTRY (27%)

- Chemical industry (additives and initiators)
- Industrial assembly and packaging (Bostik)
- Industrial equipment (Kynar® PVDF)
- Industrial refrigeration (Forane®)
- Mineral extraction and processing (ArrMaz)
- Metal processing (performance additives)
- 3D printing (Sartomer, high performance polymers)

2

BUILDING AND CONSTRUCTION (18%)

- Floor, wall and tile preparation (Bostik)
- Home thermal and acoustic insulation (Bostik, molecular sieves, Kynar Aquatec®, Forane®)



3

CONSUMER GOODS (17%)

- Hygiene and disinfection (Bostik, acrylics, hydrogen peroxide)
- DIY (Bostik)
- Sporting goods (Pebax®)
- Air conditioning (Forane®)
- Medical equipment (high performance polymers, molecular sieves)
- Paper industry (Coatex, hydrogen peroxide)
- Food industry (Sartomer, Bostik)
- Beauty (Orgasol®, Coatex)

Based on 2020 sales.

4

PAINTS AND COATINGS (17%)

- Architectural and industrial coatings (coating resins and additives, Kynar® PVDF, specialty polyamide powders, Coatex)
- Inks, varnishes and graphic arts (Sartomer)



6

AUTOMOTIVE AND TRANSPORTATION (7%)

- Cooling circuits and fuel lines (Rilsan® HT)
- Car interiors (Bostik)
- Air conditioning (Forane®)
- Truck air brake systems (specialty polyamides)
- Aeronautics (high performance polymers, Bostik)

7

ELECTRONICS AND ENERGY (6%)

- Batteries (Kynar® PVDF, Foranext® electrolytes)
- Smartphones, tablets and TVs (Sartomer, Rilsan® specialty polyamides)
- Electrical cables and wires (high performance polymers, Bostik)
- Wind turbines (Elum®)
- Oil and gas industry (sulfur derivatives, Careflex® service, molecular sieves, specialty surfactants, high performance polymers)



5

NUTRITION AND WATER (8%)

- Animal nutrition (methyl mercaptan)
- Crop nutrition (ArrMaz)
- Water treatment (acrylics, Coatex, hydrogen peroxide) and filtration (Kynar® PVDF)
- Water transportation (specialty polyamide powders)



STRONG ASSETS

Arkema can leverage solid assets to roll out its strategy and carry out its numerous projects, enabling the Group to strengthen its position among the world leaders in Specialty Materials.

IN THE TOP 3 GLOBALLY ON ~ 90% OF TOTAL SALES

RECOGNIZED BRANDS CONTRIBUTING TO CUSTOMER LOYALTY



STRONG PARTNERSHIPS

Formed over the long term with leading players in areas such as 3D printing, composites, water treatment, batteries and wind power.



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 new world-scale plant in Singapore to produce amino 11 monomer and Rilsan® polyamide 11;
- **to ensure smooth integration** of bolt-on acquisitions, particularly in Adhesive Solutions; and
- **to adapt** to the different macro-economic environments that Arkema has faced over the last 15 years, and to strongly improve its financial performance.



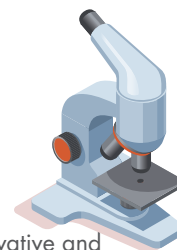
A GROUP COMMITTED TO A MORE SUSTAINABLE WORLD



With a Corporate Social Responsibility policy aimed at creating value for all stakeholders based on:

- an **offering of sustainable solutions** driven by innovation that contribute to our customers' performance;
- a commitment to act as a **responsible manufacturer**, through our actions for people's health and safety as well as for the environment; and
- an **open dialogue** with our internal and external stakeholders, in order to build a sustainable value chain and contribute to the development of the regions where the Group operates.

STRONG R&D CAPABILITIES



Enabling us to launch new innovative and sustainable 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 more than 1,600 researchers** at our 15 research centers worldwide;
- a portfolio of **over 10,000 patents**; and
- 203 new patent applications filed in 2020, including 158 relating to sustainable development.

ARKEMA

INNOVATIVE CHEMISTRY

A SOLID FINANCIAL STRUCTURE

- **Excellent cash generation** and a high EBITDA to cash conversion rate.
- **Tightly-controlled net debt** representing 1.6 times annual EBITDA at end-2020, including hybrid bonds.

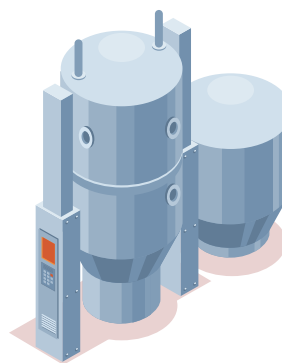


Giving us the financial flexibility needed to carry out our ambitious investment and bolt-on acquisition policy while ensuring an attractive dividend policy.

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;
- complex, **proprietary manufacturing processes**; and
- proven **expertise in large-scale investment projects** that optimize costs, timing, and superior technical implementation.



KEY FIGURES

KEY FINANCIAL DATA

<i>(In millions of euros unless otherwise stated)</i>	2020	2019	2018	2017	2016
Sales	7,884	8,738	8,816	8,326	7,535
EBITDA	1,182	1,457	1,474	1,391	1,189
EBITDA margin	15.0%	16.7%	16.7%	16.7%	15.8%
Recurring operating income (REBIT)	619	926	1,026	942	734
REBIT margin	7.9%	10.6%	11.6%	11.3%	9.7%
Net income – Group share	332	543	707	576	427
Adjusted net income	391	625	725	592	418
Net income per share (euros)	3.98	6.45	8.84	7.17	5.24
Adjusted net income per share (euros)	5.11	8.20	9.51	7.82	5.56
Dividend per share (euros)	2.50 ⁽¹⁾	2.20	2.50	2.30	2.05
Payout ratio	49%	27%	26%	29%	37%
Shareholders' equity	5,235	5,324	5,028	4,474	4,249
Net debt and hybrid bonds	1,910	2,331	1,706	1,756	2,182
Net debt and hybrid bonds/EBITDA	1.6	1.6	1.2	1.3	1.8
Capital employed	7,364	7,917	6,996	6,554	6,829
Return on capital employed	8.2% ⁽²⁾	11.7%	14.7%	14.4%	10.7%
Working capital on sales	11.8%	13.8%	13.4%	13.1%	14.5%
Free cash flow	651	667	499	565	426
EBITDA to cash conversion rate	67%	52%	38%	41%	36%
Recurring capital expenditure	460	511	500	420	423
Exceptional capital expenditure	140	96	61	10	0

Definitions of the main financial indicators are given in the glossary and in note 4 "Alternative performance indicators and information by segment" to the consolidated financial statements at 31 December 2020 in section 5.3.3 of this document.

(1) Dividend proposed at the annual general meeting on 20 May 2021.

(2) Return on capital employed adjusted for employed capital classified in 2020 as assets held for sale.

KEY NON-FINANCIAL DATA



INNOVATION

	2020	2019	2018	2017	2016
R&D expenditure (in €m)	241	249	237	235	222
Number of patent applications filed	203	222	244	239	196
Number of patent applications filed relating to sustainable development	158	149	154	150	116
Percentage of sales that significantly contribute to the United Nations' Sustainable Development Goals ⁽¹⁾	50%	46%	43%		

(1) On the basis of an assessment of 72% of the Group's third-party sales in 2020, and 44% in 2019 and 2018.



EMPLOYMENT

	2020	2019	2018	2017	2016
Headcount	20,576	20,507	20,010	19,779	19,637
Percentage of women in senior management and executive positions	23%	23%	21%	19%	18%
Percentage of non-French nationals in senior management and executive positions	41%	40%	39%	37%	39%



SAFETY

	2020	2019	2018	2017	2016
Total recordable injury rate (TRIR) ⁽¹⁾	1.0	1.4	1.3	1.6	1.5
Process safety event rate (PSER)	4.0	3.7	4.4	3.9	N/A

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



CLIMATE AND ENVIRONMENT

	2020	2019	2018	2017	2016
Greenhouse gas emissions	0.77	0.87	0.90	0.96	0.99
Volatile organic compound (VOC) emissions	0.58	0.60	0.62	0.66	0.80
Chemical oxygen demand (COD)	0.45	0.50	0.59	0.70	0.78
Net energy purchases	0.90	0.91	0.88	0.89	0.92

In absolute terms compared with 2015 for greenhouse gas emissions.
In EFPI terms compared with 2012 for the 3 other indicators.



GLOBAL TRENDS: A CONSTANTLY CHANGING WORLD

As a responsible industrial company, Arkema contributes to addressing the current and future major challenges linked to structural trends through its innovative and sustainable solutions and the optimization of its industrial operations.

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 infrastructures
- Increased demand for transportation, energy, water and services
- Changing lifestyles and consumer behavior
- Increasing concern about housing quality, comfort and energy efficiency



RESOURCE SCARCITY

Population growth, 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

Increasing urbanization, the rise in the number of cars and air travel, as well as greater industrialization 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 well below 2°C.



- Rise in the global temperature and its human 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

OUR SOLUTIONS TO ADDRESS CURRENT AND FUTURE CHALLENGES

Key challenges where
Arkema is making
a difference



ARKEMA'S SOLUTIONS

INCREASING URBANIZATION



- Facilitate the transportation of energy and water, as well as access to high-quality water.
- Treat domestic and industrial wastewater and other waste.
- Meet changing demand for consumer products.
- Improve thermal and acoustic insulation, comfort and air quality in housing.



- **Advanced materials** for ultrafiltration (Kynar® PVDF) and transportation of water (Rilsan® polyamides)
- **Hydrogen peroxide and acrylics** to disinfect water and treat wastewater
- **Acrylics and adhesives** for hygiene, **thiochemicals** for animal nutrition and **advanced materials** for sports equipment, health and beauty, and food packaging
- **Adhesives and sealants** by Bostik for insulation and sealing and low-VOC **coating resins** for paints.

RESOURCE SCARCITY



- Contribute to the development of new energies, such as lithium-ion batteries for electric vehicles, photovoltaics, hydrogen and wind power.
- Promote eco-design and the circular economy approach:
 - Develop products made from bio-based, renewable or recycled raw materials
 - Extend products' lifespan
 - Recycle end-of-life products.
- Optimize the consumption of energy, raw materials and water.



- **Advanced materials** for new energies: Kynar® PVDF for batteries and solar power, Apolhya® for solar power, Rilsan® polyamides for hydrogen, Elium® recyclable resin for wind power
- **Bio-based** Rilsan® polyamides 11 and 10 made from castor oil plants
- Kercoat® and Opticoat® coatings for glass bottles
- Elium® recyclable resin for composites and Cecabase RT® additive for asphalt, and specialty surfactants for mining

CLIMATE CHANGE



- Make vehicles and aircraft lighter, to limit their fuel consumption and reduce their CO₂ emissions.



- **Lightweighting solutions:**
 - **Advanced materials used as substitutes for metal:** Rilsan® HT, Kepstan® PEKK and Elium® thermoplastic composites
 - Bostik **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.
- Reduce greenhouse gas (GHG) emissions across the whole value chain.

- **Thermal insulation solutions:**
 - Adhesives and sealants by Bostik
 - Kynar Aquatec® PVDF coatings for cool roofs
- Development of Forane® HFO refrigerants with a very low global warming potential

NEW TECHNOLOGIES



- Contribute to the development of new markets (e.g. consumer electronics and sensors).
- Speed up the expansion of new production technologies such as 3D printing.
- Leverage new digital technologies to support operational and commercial excellence.



- **Advanced materials** for digital mobility devices (high-performance polymers for smartphones and tablets and Kynar® PVDF for batteries)
- **Full range of resins for 3D printing:**
 - Sartomer's N3xtDimension® photocure resins, Kepstan® PEKK, Rilsan® polyamides, Kynar® PVDF for major additive manufacturing technologies
- **Digital plant** thanks to the deployment of predictive maintenance tools and 3D and 4D technologies

BECOME A PURE SPECIALTY MATERIALS PLAYER

Convinced that demand for innovative and sustainable materials can only continue to grow in response to new social needs linked in particular to greater environmental awareness, increasing urbanization and the development of new technologies, Arkema has engaged in an in-depth transformation of its profile.

A UNIQUE EXPERTISE IN MATERIALS

Since its stock market listing, Arkema has made significant changes to its business portfolio through numerous acquisitions and divestments, and has invested in innovation for sustainable development.

The Group has thus developed a unique expertise in materials centered around bonding and assembly solutions, substitution by lighter or bio-based materials, and coatings and protection.

These skills in the field of materials science, combined with the Group's expertise in polymerization and formulation, as well as its application know-how, today enable Arkema to offer its customers a unique range of cutting-edge technological solutions to meet the challenges of new energies, access to water, materials lightweighting, recycling and mobility.

Structuring materials



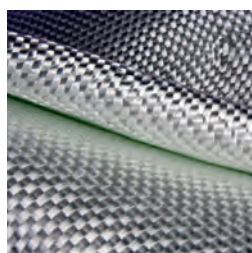
Bonding materials



Protecting surfaces



Composite materials



Recyclable materials



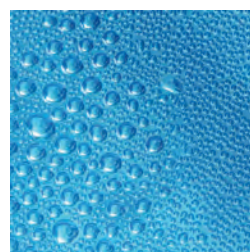
Bio-based resources



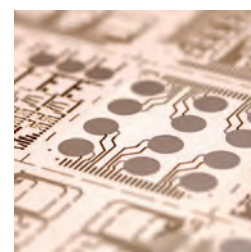
Additive technology



Surface Science



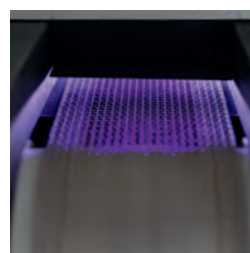
Piezoelectric materials



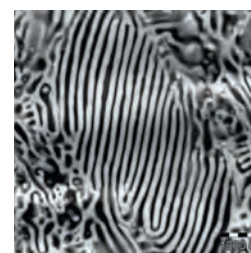
Rheology modifications



UV curing technology



Nanoscience



A NEW TRANSFORMATION PHASE

On 2 April 2020, during the Capital Markets Day, Arkema announced the launch of a new phase of its transformation based on its areas of materials expertise, now regrouped into three coherent and complementary segments: Adhesive Solutions, Advanced Materials and Coating Solutions.

These activities, which represented 82% of Group sales in 2020, constitute the Specialty Materials platform on which Arkema's long-term vision is built.

In the 2020 to 2024 period, the Group will focus its efforts and development on this platform, in line with its ambition to become a pure Specialty Materials player offering the most innovative and sustainable solutions to meet the challenges of its customers.



In addition to this platform, there are intermediate chemicals businesses, which are more cyclical in nature, regrouping PMMA, Fluorogases and Asia Acrylics. The share of these activities will be gradually reduced over time as the Group implements differentiated strategies for each of them. In this context, in December 2020 the Group announced the proposed divestment of its PMMA business to Trinseo ⁽¹⁾, which is expected to be finalized mid-2021.

(1) The proposed disposal is subject to the approval of the relevant antitrust authorities.

AMBITIOUS TARGETS FOR 2024

By 2024, Arkema's ambition is to become a pure Specialty Materials player, with a resilient and simplified portfolio.



**SALES
OF €10bn
TO €11bn**



**SUPERIOR
RESILIENCE**



**HIGH
PROFITABILITY OF
~17% OF EBITDA
MARGIN**



**ORGANIC
GROWTH
>GDP**



**STRONG
CASH
GENERATION**

SPECIALTY MATERIALS

Organic sales growth

3-3.5% on average per year
More than doubled with M&A

EBITDA Margin

Increase from 15.8% in 2019 to
~17%⁽¹⁾

Cash generation

> 40 %⁽²⁾

To carry out this new step in its development, the Group will focus on organic and external growth in Specialty Materials and will gradually reduce the share of Intermediates.

Arkema notably intends to draw on its numerous innovation projects and its investments in major projects such as the expansion of its specialty polyamides in Asia, which will in particular contribute to meet the challenges of materials lightweighting,

INTERMEDIATES

Develop
differentiated strategies
across businesses

3D printing, new energies and energy efficiency in buildings. The Group also intends to play an active role in the consolidation of the adhesives market.

In this context, corporate social responsibility will more than ever be at the core of the Group's strategy. Arkema will also build on its commercial and operational excellence programs to achieve its objectives.

The 2024 targets outlined above are based on the Group's current best estimates, excluding a significant resumption of the Covid-19 health crisis.

⁽¹⁾ Excluding corporate costs corresponding to around 1% of sales.

⁽²⁾ Free cash flow excluding exceptional CAPEX divided by EBITDA.

A STRONG CSR AMBITION

The Group has set and rolls out its CSR roadmap to support the sustainable and responsible growth of its activities and meet social challenges by offering to its customers solutions that contribute to their sustainable performance.

This roadmap includes mid and long term non-financial targets. After having revised upwards its climate and environmental objectives in 2020, the Group has set more ambitious safety and diversity targets. To reinforce its commitment across its value chain, Arkema also introduced new targets in the fields of sustainable offering and responsible procurement.

CSR TARGETS

SUSTAINABLE SOLUTIONS

BY
2030

Percentage of sales that contribute significantly to Sustainable Development Goals ⁽¹⁾: **65%**

OPEN DIALOGUE

❖ SOCIAL

BY
2030

Percentage of women in senior management and executive positions: **30%**

Percentage of non-French nationals in senior management and executive positions: **50%**

❖ SUSTAINABLE PROCUREMENT

BY
2025

Percentage of purchasing spend from relevant suppliers covered by a Together for Sustainability assessment: **80%**

RESPONSIBLE MANUFACTURER

❖ SAFETY

BY
2025

Total recordable injury rate **TRIR < 1.0**

Process safety event rate **PSER < 3.0**

❖ CLIMATE AND ENVIRONMENT

BY
2030

Climate ⁽²⁾

Greenhouse gas emissions: - **38%**

Environment ⁽³⁾

Volatile organic compound emissions: - **65%**

Chemical oxygen demand: - **60%**

Net energy purchases: - **20%**

(1) For further details concerning this target, named ImpACT+, see section 4.2.4 of this document.

(2) Greenhouse gas emissions in absolute terms relative to 2015 include Scope 1 direct emissions and Scope 2 indirect emissions and those of substances that deplete the ozone layer, in line with the Paris Agreement.

(3) In EFPI (Environmental Footprinting Performance Indicator) terms compared with 2012.



OUR TARGETS IN ADHESIVE SOLUTIONS

2020 KEY FIGURES

€2.0bn
SALES

13.1%
EBITDA MARGIN

2.5-3.0%
CAPEX INTENSITY ⁽¹⁾

2.5%
R&D INTENSITY ⁽¹⁾



MAIN BRANDS



(1) As a percentage of sales.

Following the integration of Bostik in 2015, the Group developed the Adhesive Solutions segment notably by making a number of bolt-on acquisitions in the construction sector – in particular in sealants and flooring solutions (Den Braven, XL Brands, LIP, etc.) – as well as in high performance industrial adhesives and engineering adhesives (Afinitica, Prochimir, Fixatti, etc.).

These transactions, combined with operational excellence initiatives and the product mix improvement toward higher value-added sustainable solutions, have contributed to significantly improve the segment's performance, with the EBITDA margin increasing from approximately 10% in 2014 to 13.1% in 2020.

OUR AMBITION

TAKE PART IN THE MARKET'S CONSOLIDATION BY TARGETING HIGH PERFORMANCE ADHESIVES AND SOLUTIONS IN CONSTRUCTION.

GROWTH DRIVERS

Accelerate organic sales growth:

- geographical expansion, particularly in Asia
- development of key technologies in high-performance adhesives for industrial assembly and in construction (waterproofing and flooring adhesives systems)

Launch phase 2 of the operational excellence program

Continue bolt-on acquisitions in a fragmented market, contributing to approximately two-thirds of future sales growth

2024 AMBITION

Average annual sales growth over the period 2020-2024:

high single-digit including acquisitions

around **3%** in organic terms

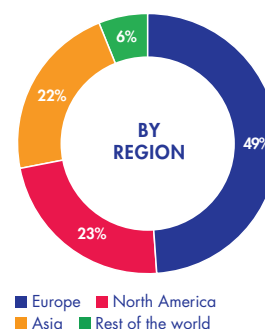
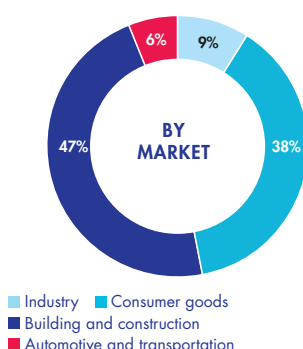
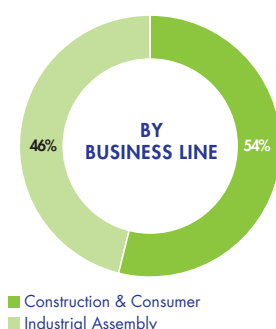
Percentage

of Group sales
30-35% in 2024

EBITDA margin

around **16%** in 2024

BREAKDOWN OF 2020 SALES





OUR TARGETS IN ADVANCED MATERIALS

2020 KEY FIGURES

€2.55bn
SALES

19.1%
EBITDA MARGIN

7-8%
CAPEX INTENSITY ⁽¹⁾

3.7%
R&D INTENSITY ⁽¹⁾



MAIN BRANDS

High Performance Polymers



Performance Additives



⁽¹⁾ As a percentage of sales.

The Advanced Materials segment includes High Performance Polymers and Performance Additives. Boasting exceptional technical and mechanical properties, High Performance Polymers offer innovative solutions with high growth potential that meet the major challenges of sustainable development. As for Performance Additives, they enable the improvement or the modification of the functional properties of materials as well as production processes.

To develop this segment, the Group has made major industrial investments, notably in thiochemicals in Malaysia, PVDF in China and molecular sieves in France, as well as some acquisitions, in particular ArrMaz.

OUR AMBITION

INVEST AND INNOVATE TO MEET THE EXPONENTIAL NEEDS FOR MATERIALS DRIVEN BY MEGATRENDS.

GROWTH DRIVERS

Support growth with major, highly profitable industrial projects (bio-based polyamide in Asia, PEKK in the United States, PVDF, etc.)

Innovate for sustainable development (bio-based materials, lightweighting, new energies, etc.)

Be our customers' preferred partner to meet their technological needs and challenges

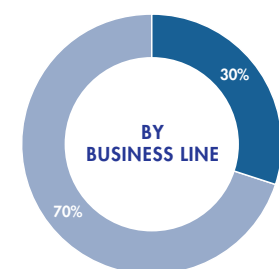
2024 AMBITION

Organic sales growth over the period 2020-2024: around **4%** on average per year

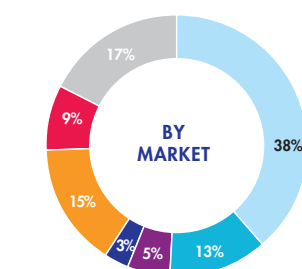
Percentage of Group sales **35-40%** in 2024

EBITDA margin stable at **22%** in 2024

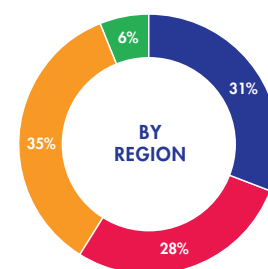
BREAKDOWN OF 2020 SALES



■ High Performance Polymers
■ Performance Additives



■ Industry ■ Consumer goods
■ Paints and coatings ■ Building and construction
■ Electronics and energy
■ Automotive and transportation ■ Nutrition and water



■ Europe ■ North America
■ Asia ■ Rest of the world



OUR TARGETS IN COATING SOLUTIONS

2020 KEY FIGURES

€1.9bn
SALES

13.7%
EBITDA MARGIN

5-6%
CAPEX INTENSITY ⁽¹⁾

2.6%
R&D INTENSITY ⁽¹⁾



MAIN BRANDS

N3XTDIMENSION
ARKEMA

LAMBSON
ARKEMA

ENCOR
ARKEMA

(1) As a percentage of sales.

The Coating Solutions segment includes the entire range of Arkema's technologies for the coatings market, which are notably used in decorative paints and for industrial applications.

With competitive, world-scale acrylics facilities, the Group has developed this segment since its stock market listing by making several acquisitions in coating resins and additives, in particular Coatex, Sartomer and Cray Valley. Integrating these downstream activities, as well as developing innovative technologies and more environmentally friendly, high value-added solutions, have helped improve the resilience and performance of the segment, whose EBITDA margin reached close to 14% in 2020.

OUR AMBITION

EXPAND OUR SUSTAINABLE OFFERING AND STRENGTHEN THE ADDED VALUE OF OUR SOLUTIONS.

GROWTH DRIVERS

Increase our production capacity in high-growth regions, particularly Asia

Optimize our operational models through reinforced integration of industrial platforms and downstream activities

Develop our sustainable offering based on low-VOC formulations and bio-based solutions

Reinforce our technology portfolio and downstream activities through bolt-on acquisitions

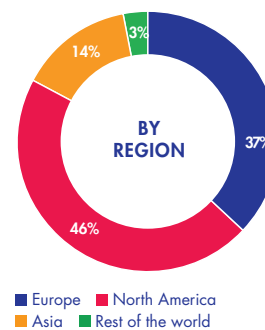
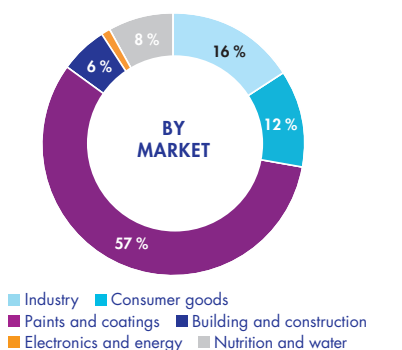
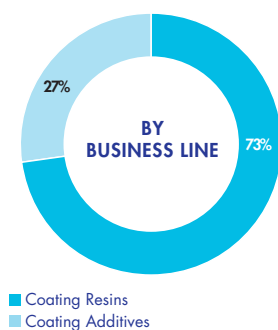
2024 AMBITION

Organic sales growth over the period 2020-2024: around **3%** on average per year

Percentage of Group sales **25-30%** in 2024

EBITDA margin around **16%** in 2024

BREAKDOWN OF 2020 SALES





OUR TARGETS IN INTERMEDIATES

2020 KEY FIGURES

€1.45bn
SALES

16.2%
EBITDA MARGIN

The Intermediates segment includes the more volatile PMMA, Fluorogases and Asia Acrylics activities, where Arkema holds leading global positions, supported by cutting-edge technologies, competitive, world-scale facilities and strong partnerships.

In line with its ambition to become a pure Specialty Materials player by 2024, the Group plans to reduce the share of these more cyclical activities in its portfolio and will implement differentiated strategies for each of them, a significant part of which will involve considering divestments or partnerships that deconsolidate the activity. In this context, in December 2020 the Group announced the proposed divestment of its PMMA business to Trinseo ⁽¹⁾, which is expected to be finalized mid-2021.

OUR PROJECTS AND STRATEGIC REVIEWS

PMMA

Functional Polyolefins disposal to SK Global Chemical finalized on 1 June 2020.

Based on an enterprise value of **€335 million**.

Proposed divestment of PMMA business to Trinseo ⁽¹⁾, which is expected to be finalized mid-2021. The offer values the business at **€1,137 million**, i.e. **9.3x** estimated 2020 EBITDA.



FLUOROGASES

For non-emissive applications, support the growth of our fluoropolymers while strengthening their upstream competitiveness, and accelerate the development of specialty fluorogases, notably in electronics and batteries.

For emissive applications, which represent approximately 75% of the business, explore several deconsolidation options through partnerships or mergers, either globally or on a regional level, with third parties which could accelerate their development.

ASIA ACRYLICS

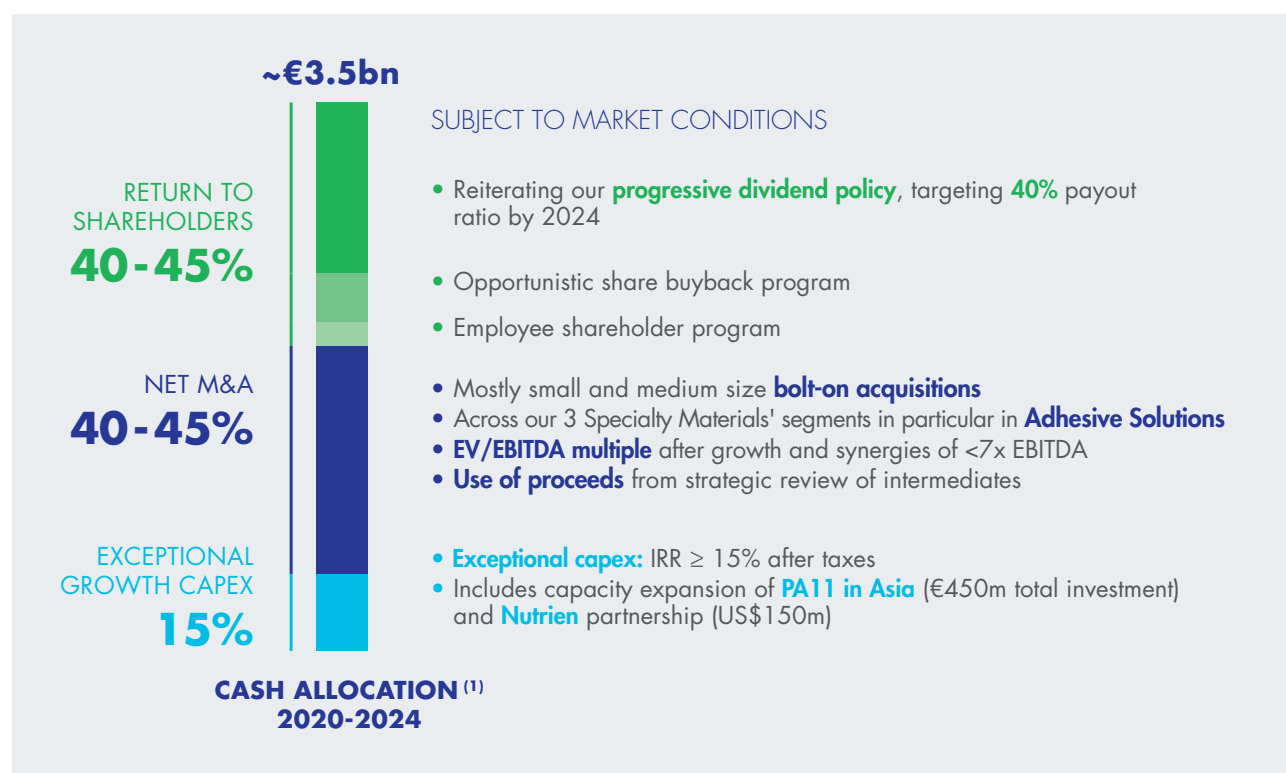
Rebalance upstream and downstream capacities by reducing exposure to the monomers market through industrial partnerships and strengthening downstream activities through organic growth and bolt-on acquisitions.

ONCE THESE STRATEGIES ARE IMPLEMENTED, NON-EMISSIVE FLUOROGAS APPLICATIONS AND THE ASIA ACRYLICS BUSINESS WILL JOIN THE SPECIALTY MATERIALS PLATFORM.

(1) The proposed disposal is subject to the approval of the relevant antitrust authorities.

A BALANCED ALLOCATION OF AVAILABLE CASH

The Group's strategy, as described above, constitutes a central element of cash allocation with three priorities: exceptional capital expenditure, targeted bolt-on acquisitions in Specialty Materials, and increased shareholder returns.



Maintaining the net debt (including hybrid bonds) to EBITDA ratio around the end-2019 level, the available cash over the period 2020-2024 should amount to approximately €3.5 billion, 15% of which will be dedicated to major organic growth projects, with the balance being distributed evenly between portfolio management operations and shareholder returns.

The targets outlined above are based on the Group's current best estimates, excluding a significant resumption of the Covid-19 health crisis.

⁽¹⁾ Cash from operations less recurring CAPEX plus additional net debt at constant leverage (1.6x EBITDA including €700m of hybrid bonds).



STRICT FINANCIAL DISCIPLINE

This ambitious roadmap will remain underpinned by strict financial discipline.



RECURRING CAPITAL EXPENDITURE

5.5%
OF SALES



TIGHTLY MANAGED WORKING CAPITAL OF AROUND

14%
OF SALES



NET DEBT TO EBITDA RATIO < 2x
(INCLUDING HYBRID BONDS)



FINANCIAL RATING MAINTAINED AT A

SOLID
INVESTMENT GRADE



RETURN ON CAPITAL EMPLOYED

> 10%

ACCELERATE ORGANIC GROWTH

As part of this new phase of transformation, and in order to achieve its organic growth target of between 3% and 3.5% on average per year over the period 2020-2024, Arkema will leverage its recent production unit start-ups and continue its ambitious investment policy in high-growth countries. These projects, the most significant of which concerns the expansion of its specialty polyamides in Asia, will support growth in demand in several key end-markets, such as consumer goods, new energies and transportation.

2020

HIGHLIGHTS



€600m
IN RECURRING AND
EXCEPTIONAL CAPITAL
EXPENDITURE



MALAYSIA

Start-up during first-quarter 2020 of the doubling of the methyl mercaptan production capacity at the Kerteh site to support the strong growth of the animal nutrition, refining and petrochemical markets in Asia.



JAPAN

Start-up of a new world-scale industrial adhesives plant in Japan to serve the growing hygiene, packaging, labeling, transportation and electronics markets.



CHINA

Start-up of a 50% extension of PVDF production capacity at the Changshu site in December 2020 dedicated to the lithium-ion batteries market.



CHINA

Start-up of a 25% increase in global polyamide 12 production capacity in Changshu in the last quarter of 2020 to support strong demand in growing applications such as lightweighting in the automotive, sports equipment or electronics markets.



RECURRING
CAPITAL
EXPENDITURE OF
5.8%
OF GROUP
SALES

AN AMBITIOUS INVESTMENT POLICY

To support its customers' geographic expansion, the Group aims for recurring capital expenditure to average **around 5.5% of sales** per year, with around 40 to 45% dedicated to growth projects and 55 to 60% to maintenance, safety and the environment.

In addition to this recurring capital expenditure, the Group will invest **around €525 million in exceptional capital expenditure** in the period 2020-2024 on:



ASIA

The major project announced in **specialty polyamides in Asia**, including in particular the construction of a new monomer and Rilsan® polyamide 11 production facility in Singapore, expected to start in 2022. It will allow the Group to support the very high customer demand for lightweight bio-based materials in automotive, 3D printing and consumer goods markets.

This investment, which represents a total amount of around €450 million, and the financing of which includes a green bond dedicated to the Singapore plant, should generate an EBITDA of around €100 million at full capacity.



NORTH AMERICA

The US\$150 million investment announced as part of the **partnership with Nutrien to produce anhydrous hydrogen fluoride**, the main raw material for fluoropolymers and fluorogases, which will be carried out by Arkema at Nutrien's site in the United States.

This investment has many advantages in terms of both securing a competitive access to hydrofluoric acid and environmental friendliness compared with more traditional processes. Start-up of the unit is expected in 2022.



IN 2021, ARKEMA'S RECURRING AND EXCEPTIONAL CAPITAL EXPENDITURE IS EXPECTED TO AMOUNT TO AROUND

€750m

INNOVATE FOR SUSTAINABLE DEVELOPMENT

Technological innovation is at the heart of Arkema's strategy and a key growth driver. It enables the Group to address major economic and societal challenges with solutions that contribute to the United Nations' Sustainable Development Goals.

SUPPORTING OUR CUSTOMERS ADDRESS THEIR CHALLENGES

Thanks to its 15 R&D centers across the world, Arkema develops new products, applications and production technologies to meet customers' increasingly demanding needs in leading-edge sectors such as aerospace, automotive, consumer electronics and new energies.

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 has developed Kepstan® PEKK, a material for extreme environments that can withstand temperatures of up to 260°C, and Elium® resin, used to make lightweight wind turbine blades and enabling end-of-life recycling.

CONTRIBUTING TO OPERATIONAL EXCELLENCE

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



TOWARD A PORTFOLIO OF INCREASINGLY SUSTAINABLE SOLUTIONS

The Group is actively implementing an assessment of its portfolio of solutions in light of sustainability criteria. At end-2020, **72%** of sales had been assessed, of which

50%

significantly contribute to the United Nations' Sustainable Development Goals.

KEY FIGURES (2020)



MORE THAN
1,600
RESEARCHERS



€241
MILLION OF R&D
EXPENDITURE

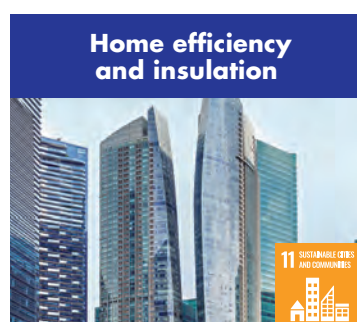


3.7%
OF ADVANCED
MATERIALS SALES
ALLOCATED TO THE
SEGMENT'S R&D

5 INNOVATION PLATFORMS IDEALLY POSITIONED TO MEET CURRENT AND FUTURE CHALLENGES

In a world of powerful global trends, such as increasing urbanization, resource scarcity, climate change and new technologies, Arkema focuses its research efforts to ensure its solutions adequately address market demand and specific customer expectations worldwide.

Based on this work, which is reviewed regularly, the Group has set up 5 innovation platforms which perfectly meet 5 United Nations' Sustainable Development Goals, with a new innovation platform dedicated to natural resources management. The latter includes bio-based or recyclable solutions, the circular economy and water management.



OUR SUSTAINABLE INNOVATION
DYNAMIC SHOULD ENABLE US
TO GENERATE AN ADDITIONAL
€400 MILLION IN SALES BY 2024
AND UP TO €1 BN BY 2030.



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



203
APPLICATIONS FILED
78% RELATING
TO SUSTAINABLE
DEVELOPMENT



**NUMEROUS
PARTNERSHIPS**
WITH UNIVERSITIES
AND RESEARCH
LABORATORIES,
BOTH PUBLIC
AND PRIVATE



~15%
OF SALES GENERATED
BY PRODUCTS
LAUNCHED
< 5 YEARS AGO

STRENGTHEN OUR SPECIALTY MATERIALS WITH BOLT-ON ACQUISITIONS

The Group aims to more than double the organic growth of its Specialty Materials between 2020 and 2024 through bolt-on acquisitions. Priority will be given to Adhesive Solutions with, on average, two to three small transactions per year supplemented by one to three medium-sized acquisitions over the period.

ACQUISITIONS THAT CREATE LONG-TERM VALUE

In line with its ambition to carry out transactions that create value, the Group aims to make acquisitions offering significant synergies, thereby reducing the enterprise value to EBITDA multiple to about 7x, four or five years after the acquisition, taking into account organic growth and 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 implementing operational excellence programs; and

- new geographic, technological or commercial developments driven by the know-how and the strategic fit between Arkema and the acquired businesses.

Subject to appropriate market conditions, Arkema plans to allocate to its acquisition program, net of divestments, 40 to 45% of its available cash, which is estimated at approximately €3.5 billion over the period 2020-2024, while maintaining a net debt (including hybrid bonds) to EBITDA ratio of 1.6x, similar to its end-2019 level.



2020 HIGHLIGHTS

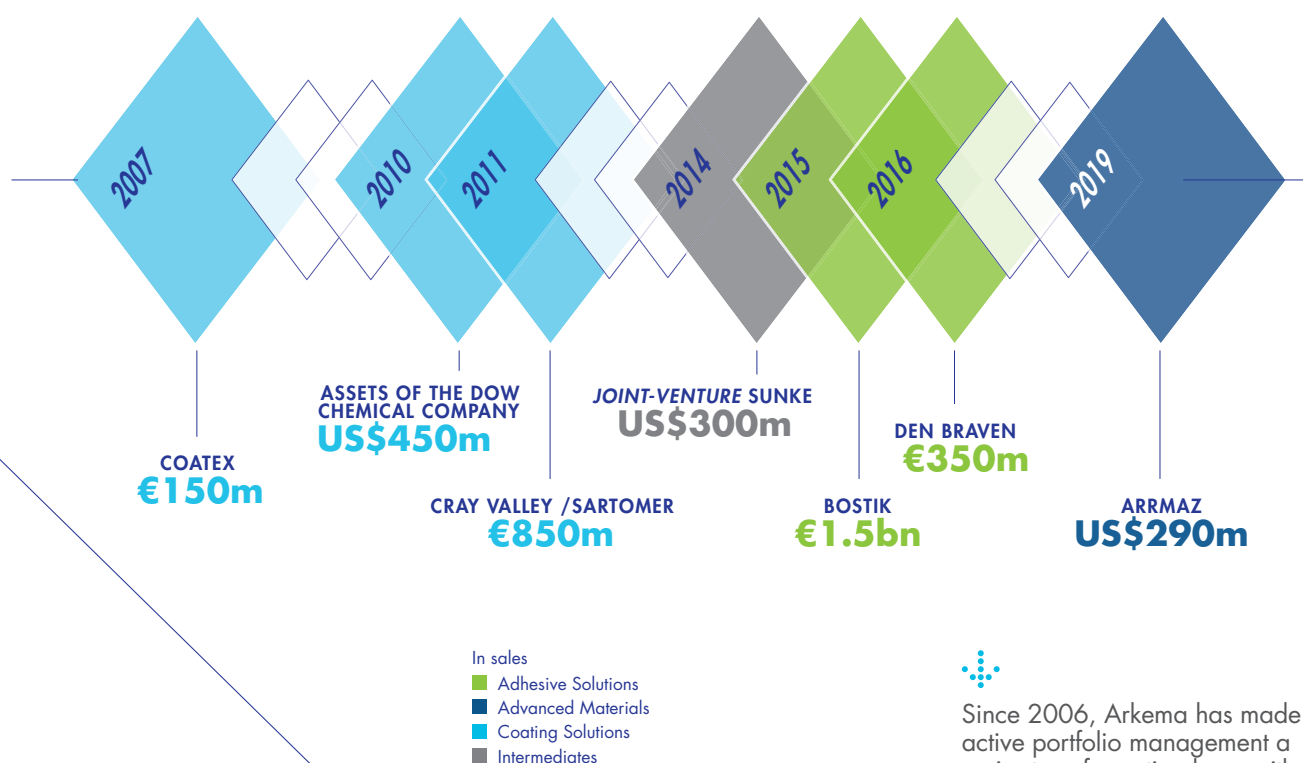
BOLT-ON ACQUISITIONS IN ADHESIVE SOLUTIONS:

- LIP Byggningsartikler AS (LIP), the Danish leader in tile adhesives, waterproofing systems and floor preparation solutions;
- Fixatti, a company specialized in high performance thermobonding adhesive powders for the construction, technical coating and automotive markets; and
- Ideal Work, an Italian company specialized in high value-added decorative floor technologies.

AND IN COATING SOLUTIONS:

- Colorado Photopolymer Solutions, a US-based company with strong technical expertise in photopolymer formulation for the rapidly growing 3D printing market.

TRANSFORMATIONAL ACQUISITIONS



Since 2006, Arkema has made active portfolio management a major transformation lever with, in particular, the acquisition of Bostik in 2015 and the subsequent development of its Adhesive Solutions segment, as well as the strengthening of its presence in the high value-added downstream activities of its Coating Solutions segment.

At the end of 2020, these transactions represented around €4.4 billion in sales, with an average EBITDA multiple of 9.4x, which was reduced to 7.6x after taking into account synergies and organic growth.

DIVESTMENT IN INTERMEDIATES

In line with its objective of reducing the share of Intermediates in the Group's activities, Arkema took two important steps in 2020:

- The finalization of the divestment of the Functional Polyolefins business to SK Global Chemical, in June 2020, representing sales of around €250 million. The divestment was based on an enterprise value of €335 million.
- The announcement, in December 2020, of the proposed divestment of its PMMA business to Trinseo ⁽¹⁾. The offer received values the business at €1,137 million, i.e., 9.3x estimated EBITDA for 2020. In 2020, this business generated sales estimated at €510 million.



Since 2006, the Group has made disposals worth €2.7 billion in sales, with the main transactions being the divestment of the vinyl products business finalized in 2012, the Functional Polyolefins business in 2020 and the PMMA business, which is expected to be finalized mid-2021.

(1) The proposed disposal is subject to the approval of the relevant antitrust authorities.

CORPORATE SOCIAL RESPONSIBILITY AT THE HEART OF OUR STRATEGY

Arkema's Corporate Social Responsibility approach aims to create long-term value for all its stakeholders. To this end, Arkema's ambition is to provide its customers with sustainable and innovative solutions that contribute to the United Nations' Sustainable Development Goals (SDGs).

The Group also operates as a responsible manufacturer by resolutely aiming for an approach of operational excellence and continuous improvement, while building ever-closer relationships with stakeholders thanks to open and close dialogue.

THREE KEY COMMITMENTS



A CROSS-FUNCTIONAL APPROACH, FOCUSED ON 5 PRIORITY AREAS

To validate its CSR approach and ensure the relevance of its main initiatives with regard to its various stakeholders, Arkema carried out a materiality assessment in 2019, which confirmed the validity of its corporate social responsibility policy.

It also pointed to five priority areas for the Group:

1. Develop the **sustainable solutions** offering through collaborative innovation and by implementing the portfolio assessment program
2. Intensify the **circular economy** approach across the entire value chain
3. Roll out Arkema's **climate plan** roadmap in line with the **Paris Agreement**
4. Maintain a **high level of prevention** and **management of industrial risks**
5. Ensure the **safety, health** and **well-being** of employees



A CLEAR ROADMAP ACROSS THE ENTIRE VALUE CHAIN

Arkema is committed to creating sustainable value along the value chain, for its entire ecosystem of stakeholders including suppliers, customers, employees and partners. This commitment is reflected by a number of substantive programs, from a responsible upstream procurement chain to the development of an increasingly sustainable solutions offering for its customers and end users, as well as the reduction in health, safety and environmental risks and promotion of diversity and equal opportunities.



RECOGNIZED CSR PERFORMANCE

The Group's approach and performance in the various areas of CSR are regularly assessed by external stakeholders including customers and SRI rating agencies. These agencies now place Arkema in the top quartile of the chemical industry, and recognize its very high levels of commitment and performance in relation to environmental, social and governance aspects.

Committed to an active approach aimed at constant improvement, Arkema achieved its goal to join the **Dow Jones Sustainability Index (DJSI)** in 2020, entering the "Chemicals" category of the DJSI World in **6th place** out of the 114 companies assessed. The Group has also joined DJSI Europe as the second best company in its sector.

NON FINANCIAL RATINGS

	2015	2019	2020
 Now a Part of S&P Global Member of Dow Jones Sustainability Indices Powered by the S&P Global CSA	42	65	79
	BB	A	A
 (Climate Change)	C	B	A-
	Gold	Gold	Top 1%

Other ratings



The Group also joined for the first time S&P Global's "**Sustainability Yearbook 2021**" with the **bronze class distinction**.

2020 HIGHLIGHTS

- Announcement of Arkema's ambitious climate plan in line with the Paris Agreement and new environmental targets for 2030.
- Launch of phase 2 of the Pragati program, the world's first sustainable castor seed crop project, in partnership with BASF, Jayant Agro-Organics and the Solidaridad NGO.
- Member of the World Business Council for Sustainable Development (WBCSD) to help accelerate the transition to a more sustainable world.
- Issuance of the Group's first green bond for a total amount of €300 million, fully dedicated to the financing of its new world-scale plant in Singapore for the production of 100% bio-based Rilsan® polyamide 11.
- Partner of the ZEBRA (Zero waste Blade ReseArch) project to design and produce the first 100% recyclable wind turbine blade, using Elium® resin. The 2020 Pierre Potier Prize was awarded to the Group for this resin.
- Arkema's mobilization for the production in pilot installations of nearly 100 tons of hand sanitizer in order to give them to healthcare facilities in the United States, Australia, China and France.

COMMERCIAL AND OPERATIONAL EXCELLENCE INITIATIVES

To achieve its long-term ambition, the Group implements strong actions in the cross-functional areas of commercial and operational excellence. The digital transformation program is central to these initiatives, notably through numerous projects that allow the Group to make the most of the possibilities offered by new technologies.



COMMERCIAL EXCELLENCE: CUSTOMERS AT THE HEART OF ARKEMA'S STRATEGY AND INNOVATION POLICY

In order to improve customer focus and intimacy, meet their needs as effectively as possible and promote the diversity of the Group's solutions, Arkema's commercial excellence program notably focuses on:

- a collaborative Customer Relationship Management tool, rolled out across all of the Group's businesses in 2020 and used to share customer data, manage development opportunities and implement synergies for multi-business customers;
- reporting systems, which allow for more relevant business analysis and management, and better knowledge of our exposure to each market;
- the Sales Academy, a program of dedicated, ongoing training courses aimed at sales teams, to develop their expertise in sales processes and customer relations;
- a network of global key account managers who supervise and consolidate relationships with key customers in order to more effectively meet their needs while taking advantage of cross-business synergies that can emerge from the Group's various activities;
- internal working groups to optimize the Group's commercial offering in its major markets;
- targeted sales actions in high-growth regions where Arkema plans to strengthen its positions; and
- a growing customer focus, recognized in our first global customer satisfaction survey conducted in February 2020, where 84% of respondents said they were satisfied or extremely satisfied with their relationship with Arkema – a high score within the industry.



INCREASINGLY EFFICIENT DIGITAL TOOLS

Strengthened interactions with our customers

- Redesign of the Bostik and Arkema websites for optimized browsing and tracking of the customer journey to better understand their needs;
- Launch in 2021 of the Bostik Academy, a digital platform dedicated to professionals in the construction sector; and
- Introduction of online seminars and virtual trade shows, rolled out more widely in the context of the pandemic.

An improved services offering

- Optimization of customers' operations thanks to product connectivity, increased flow traceability and the use of technical data (sometimes carried out remotely); and
- Digitalization of our Careflex® service based on the connectivity of our injection system, thereby allowing better monitoring and real-time communication with our customers.



OPERATIONAL EXCELLENCE: DEVELOPING A CULTURE OF OPERATIONAL EFFICIENCY TO ENSURE THE COMPETITIVENESS AND SUSTAINABILITY OF INDUSTRIAL SITES

Our approach

Arkema has launched a continuous progress initiative across all Group businesses and subsidiaries, covering 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
- gradual rollout of the SMART project, involving all employees in the process of continuously improving the performance of production units.

Our 5 commitments

1 Being a top-quartile performer in the chemical industry in terms of safety and environmental footprint

Arkema continues to improve its performance in line with its 2025 targets for safety and 2030 targets for the climate and the environment.

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

- Constant improvement of the manufacturing base and strengthening of its competitiveness and reliability through investments and the rollout of high performance digital tools;
- Optimization of operating costs and industrial investments through a global procurement strategy for goods and services; and
- Reduction of variable costs, by optimizing raw materials consumption and energy efficiency thanks to continuous process improvement and targeted investments under its Arkenergy program.

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

The Group recently reorganized its IT systems in order to optimize its supply chain and the quality of customer service, and, as regards customer service, set up a dedicated department and introduced ambitious improvement targets.

4 Developing the technological innovation policy

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 Promoting and reinforcing employee engagement

In order to sustain its approach, Arkema develops an operational excellence culture among employees and promotes their day-to-day actions that contribute to the Company's continuous progress.

Digital excellence

- Use of digital technologies to transform the way we work;
- Development of remote expertise, allowing us to continue our investments and maintenance operations despite travel restrictions; and
- Implementation of training modules using augmented reality, particularly those relating to safety.

A collaborative workplace

- Sharp acceleration in the use of collaborative and connected office automation tools in the context of the Covid-19 health crisis;
- Rollout of the "Travailler Ensemble, Travailler Malin" (Work Together, Work Smart) program, helping all employees to become more proficient in using office automation tools and to more easily work in collaborative mode; and
- Development of simpler and more user-oriented online training courses.



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

OUR BUSINESS MODEL

Design and 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 worldwide presence in **55 countries**
- A balanced portfolio of businesses
- Strong partnerships with leading customers

OPERATIONAL STRENGTHS

- A global footprint with **147 production sites**
- **€6.2 billion** in tangible and intangible assets

R&D STRENGTHS

- **5 innovation platforms** focused on the megatrends shaping the future
- **More than 1,600 researchers** in **3 regional R&D hubs** worldwide
- Robust intellectual property with over **10,000 patents**

HUMAN CAPITAL

- **20,600 employees** embracing the Company's value and committed to its long-term plan

FINANCIAL STRENGTHS

- Limited debt with a **net debt** (including hybrid bonds) of **1.6x EBITDA**

OUR VALUE CREATION MODEL

OUR VALUES

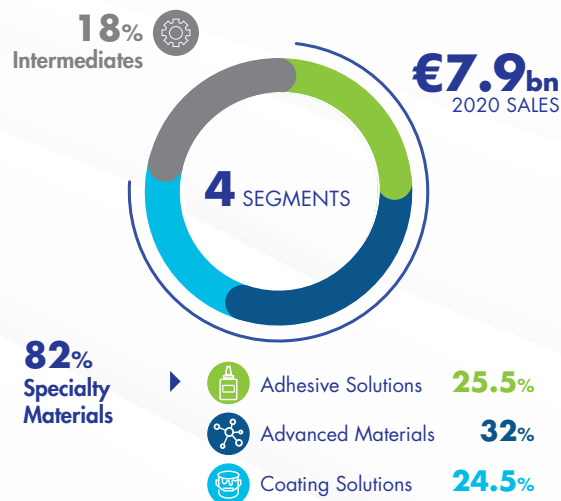
PERFORMANCE

ACCOUNTABILITY

SOLIDARITY

SIMPLICITY

OUR ORGANIZATION



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

(1) See pages 8 and 9.

(2) Share of sales which contribute significantly to Sustainable Development Goals.

(3) Total recordable injury rate per million hours worked with or without lost-time.

(4) Process safety event rate per million hours worked.

(5) In intensity compared with 2012 for water, air and energy; in absolute value compared with 2015 for climate.

OUR AMBITION

OUR PRIORITIES

OFFER

*sustainable solutions driven
by innovation
and product stewardship*

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

SUPPORT

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

ACT

*as a responsible manufacturer deeply
rooted in host communities*

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

**BECOME A PURE SPECIALTY
MATERIALS PLAYER BY 2024**
with a resilient and simplified portfolio

FINANCIAL TARGETS (2024)

- Sales of **€10bn to €11bn**
- Organic growth **> GDP**
- High profitability of **~ 17% of EBITDA margin**
- Strong **cash generation**

Under strict financial discipline

- Recurring capital expenditure of approximately **5.5% of sales**
- Strictly managed **working capital of ~14% of sales**
- Net debt (including hybrid bonds) **<2x EBITDA**
- ROCE **>10%**
- Solid **investment grade** rating

LONG-TERM NON-FINANCIAL TARGETS

Sustainable Solutions (2030)

- Percentage of ImpACT+ sales ⁽²⁾: **65%**

Safety (2025)

- Total recordable injury rate TRIR ⁽³⁾ **< 1.0**
- Process safety event rate PSER ⁽⁴⁾ **< 3.0**

Climate and environment ⁽⁵⁾ (2030)

- Greenhouse gas emissions: **- 38%**
- Volatile organic compound emissions: **- 65%**
- Chemical oxygen demand: **- 60%**
- Net energy purchases: **- 20%**

Diversity in senior management and executive positions (2030)

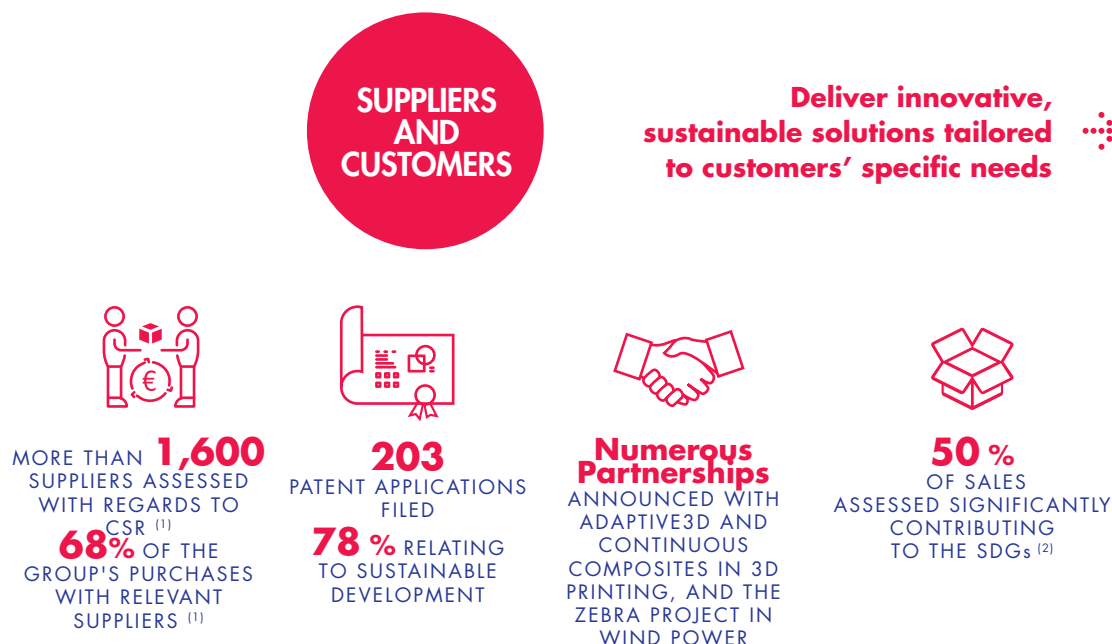
- Percentage of women: **30%**
- Percentage of non-French nationals: **50%**

Sustainable procurement (2025)

- Percentage of purchasing spend from relevant suppliers covered by a Together for Sustainability assessment: **80%**

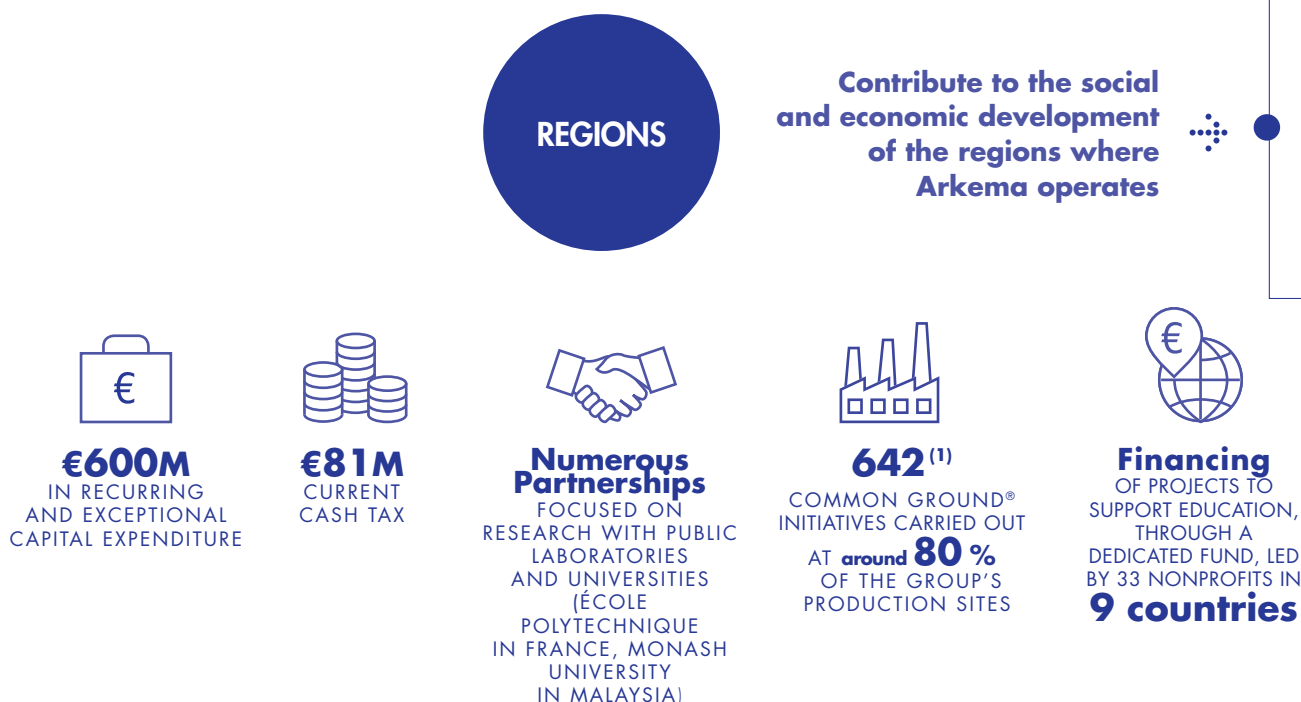
OUR VALUE CREATION

Since its stock market listing in 2006, Arkema has engaged in an in-depth transformation process guided by an ambitious plan to create value for its stakeholders.



(1) Covered by a Together for Sustainability (TfS) assessment.

(2) On the basis of an assessment of 72% of the Group's third party sales in 2020.



(1) Reduction compared with 2019, due to the Covid-19 context.

2020 Data.

Over the next few years, the Group will endeavor to move forward with this project to continue creating long-term value for all its stakeholders, both internal and external, and especially its employees, customers, shareholders and regions where Arkema operates.



€1.5bn
PAYROLL
EXPENSES



20,600
EMPLOYEES
25.6 %
WOMEN



1.0
INJURY
RATE (TRIR)



6.7%
OF CAPITAL
OWNED BY
EMPLOYEES



18 hours
OF TRAINING
ON AVERAGE
PER EMPLOYEE
PER YEAR



**Promote the individual and
collective development of all
Group employees**

EMPLOYEES



8.2%
RETURN ON
CAPITAL EMPLOYED



€651M
FREE CASH
FLOW



€2.50 ⁽¹⁾⁽²⁾
2020 DIVIDEND
PER SHARE



€300M ⁽²⁾⁽³⁾
SHARE BUYBACK
PROGRAM



**Create long-term value with an ambitious
transformation plan while gradually
increasing the dividend**

SHAREHOLDERS

(1) Dividend proposed at the annual general meeting on 20 May 2021.

(2) These provisions include the restitution to shareholders of the €0.50 per share portion of the dividend which had been retained in 2020 in the context of the pandemic.

(3) To start after the finalization of the PMMA disposal.

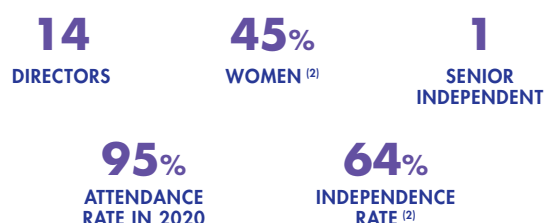
AN EXPERIENCED AND DIVERSIFIED BOARD OF DIRECTORS

Arkema's governance includes a Board of Directors with a Chairman and Chief Executive Officer and a senior independent director, as well as three specialized committees ⁽¹⁾. The Chairman and CEO is supported by an Executive Committee comprised of 7 operational and functional Executive Vice-Presidents and 3 operational Senior Vice-Presidents.

Arkema's Board of Directors comprises **14 directors, including 7 independent directors, 2 directors representing employees and 1 director representing shareholder employees**. The independence rate is 64% ⁽²⁾, in line with the recommendations of the AFEP-MEDEF Code.

Except for the directors representing employees, directors are appointed for a four-year term by the ordinary general meeting.

COMPOSITION AT 31 DECEMBER 2020



COMPOSITION OF THE BOARD OF DIRECTORS AT 31 DECEMBER 2020

						COMMITTEES	
		Age	Year of first appointment	Year current term expires	Other directorships in listed companies	Audit and Accounts	Nominating, Compensation and Corporate Governance
Thierry Le Hénaff	Chairman and Chief Executive Officer	57	2006	2024	2		
Yannick Assouad		61	2017	2021	2		
Jean-Marc Bertrand	Director representing shareholder employees	62	2018	2022	None		
Marie-Ange Debon		55	2018	2022	2	Chairman	
Ian Hudson		63	2019	2023	1	●	
Alexandre de Juniac		58	2018	2022	None		●
Victoire de Margerie		57	2012	2023	2		●
Laurent Mignon		57	2006	2023	2		
Hélène Moreau-Leroy	Senior independent director	56	2015	2023	None	●	
Thierry Morin		68	2006	2021	1		Chairman
Nathalie Muracciole	Director representing employees	56	2016	2024	None		
Marc Pandraud		62	2009	2021	None		
Susan Rimmer	Director representing employees	45	2020	2024	None		
Fonds Stratégique de Participations represented by Isabelle Boccon-Gibod	Shareholder with more than 10% of voting rights	52	2014	2022	4		
					3	●	

(1) The Board of Directors has decided to set up an Innovation and Sustainable Growth Committee as from the close of the annual general meeting of 20 May 2021.

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

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.

PROPOSED EVOLUTIONS OF THE COMPOSITION OF THE BOARD OF DIRECTORS

(as from the close of the annual general meeting of 20 May 2021, subject to a favorable vote)

- Appointment of Thierry Pilenko as an independent director for a four year term and as a replacement for Thierry Morin as Chairman of the Nominating, Compensation and Corporate Governance Committee;
- Appointment of Bpifrance Investissement as an independent director for a four year term and as a member of the Innovation and Sustainable Growth Committee; and
- Appointment of Ilse Henne for a four year term as an independent director and as a member of the Audit and Accounts Committee.

OTHER EVOLUTIONS IN 2021

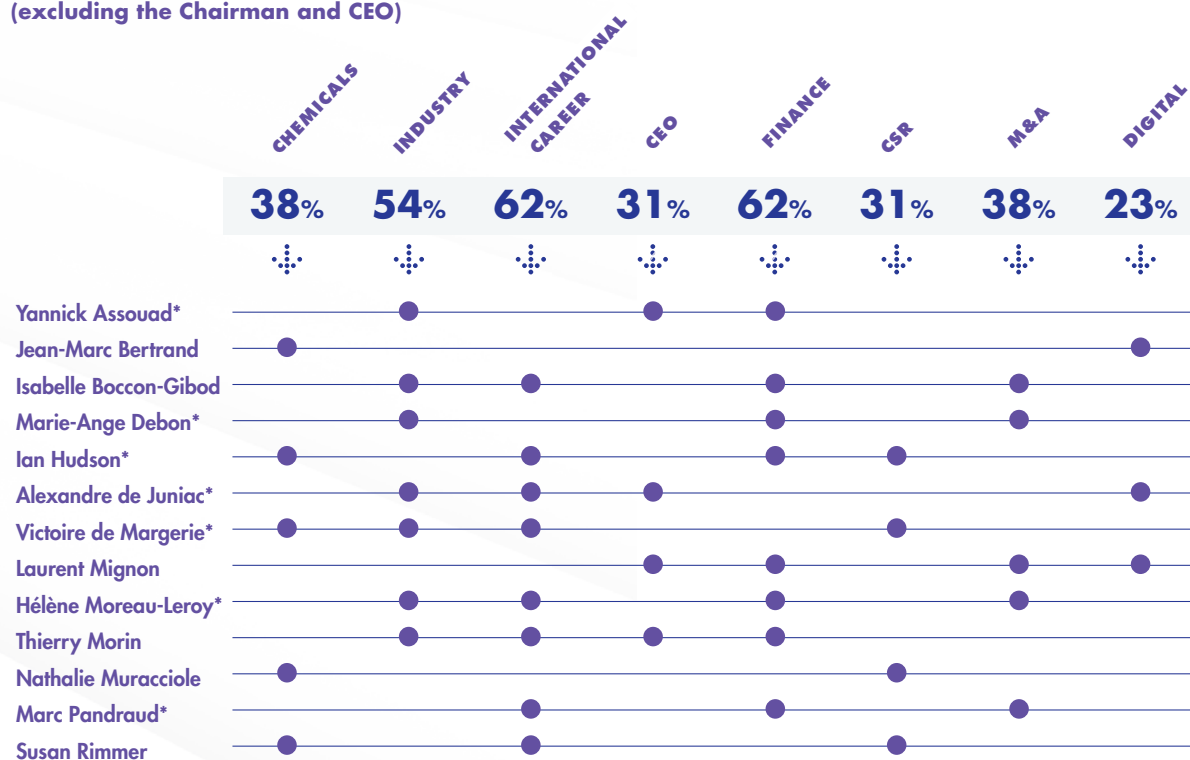
(as from the close of the annual general meeting of 20 May 2021)

- Appointment of Hélène Moreau-Leroy, senior independent director, as a member of the Nominating, Compensation and Corporate Governance Committee;
- Appointment of Victoire de Margerie, independent director, as Chairman of the Innovation and Sustainable Growth Committee; and
- Appointment of Nathalie Murraciale, director representing employees, as a member of the Nominating, Compensation and Corporate Governance Committee, for all issues related to compensation.



GIVEN THOSE EVOLUTIONS, ARKEMA IS NOW 100% IN LINE WITH THE RECOMMENDATIONS OF THE AFEP-MEDEF CODE.

DIRECTORS' SKILLS MATRIX (excluding the Chairman and CEO)



*Independent directors.

THE BOARD'S WORK

The Board of Directors

DETERMINES THE GROUP'S STRATEGIC GUIDELINES AND OVERSEES THEIR IMPLEMENTATION.

Its approval is required for:

- **investments** in excess of €80m;
- **acquisitions** or **divestments** with an **enterprise value in excess of €130m**;
- 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 for all of its stakeholders, taking into consideration the social and environmental implications of its businesses.

MEETINGS

12

Including one meeting on Group strategy, with 100% attendance rate

ATTENDANCE RATE

95%



TO ACCOMPLISH ITS MISSIONS, THE BOARD IS SUPPORTED BY

3 specialized committees

Audit and Accounts Committee

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

❖ **6**

MEETINGS

❖ **100%**

ATTENDANCE RATE

Nominating, Compensation and Corporate Governance Committee

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

❖ **4**

MEETINGS

❖ **100%**

ATTENDANCE RATE

Innovation and Sustainable Growth Committee

(As from the annual general meeting of 20 May 2021)

The Innovation and Sustainable Growth Committee is tasked with assessing the contribution of Arkema's innovation and strategy to environmental challenges and sustainable growth. Together with the Audit and Accounts Committee and the Nominating, Compensation and Corporate Governance Committee, this new Committee will help perform a comprehensive review of the Group's ESG and non-financial challenges.

ANNUAL ASSESSMENT OF THE BOARD OF DIRECTORS' OPERATING PROCEDURES

The Board of Directors carries out an annual self-assessment of its operating procedures using a questionnaire that it validates. An assessment of the Board of Directors' operating procedures is 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.


For 2020, the Board of Directors' annual assessment was carried out with the help of a self-assessment questionnaire according to which the directors continue to be very satisfied with the Board's operating procedures with a strengthened involvement in the context of the pandemic.

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.

EXECUTIVE COMMITTEE

The Chairman and Chief Executive Officer is also supported by an Executive Committee comprising a Chief Operating Officer, 5 operational and functional Executive Vice-Presidents, and 3 operational Senior Vice-Presidents.


20%
OF BOARD MEMBERS
ARE WOMEN

COMPOSITION OF THE EXECUTIVE COMMITTEE AT 31 DECEMBER 2020

NAME	POSITION	AREA OF RESPONSIBILITY
Thierry Le Hénaff	Chairman and Chief Executive Officer	
Marc Schuller	Chief Operating Officer	Advanced Materials and Coating Solutions segments, North America region, commercial excellence, raw materials and energy procurement
Reporting to Marc Schuller:		
Richard Jenkins	Operational Senior Vice-President	Coating Solutions segment
Marie-Pierre Chevallier	Operational Senior Vice-President	Performance Additives Business Line
Erwoan Pezron	Operational Senior Vice-President	High Performance Polymers Business Line
Vincent Legros	Executive Vice-President, Bostik	Adhesive Solutions segment
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
Bernard Boyer	Executive Vice-President, Strategy	Planning, economic studies, acquisitions/divestitures, internal audit and internal control, insurance and risk management, and legal affairs
Marie-José Donsion	Chief Financial Officer	Accounting, management control, treasury management, financing, taxation, investor relations, IT and digital transformation
Thierry Parmentier	Executive Vice-President, Human Resources and Communication	Human resources and communication

The R&D department falls within the remit of Christian Collette, Chief Technical Officer (CTO) of Arkema, and reports directly to the Chairman and Chief Executive Officer.

CORPORATE SOCIAL RESPONSIBILITY

4

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4.2.2 Innovation	59	4.5.4 Indicators	120
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4.1 Arkema's corporate social responsibility (CSR) approach

4.1.1 CSR policy

Arkema aims to generate sustainable and responsible growth for its businesses and to meet societal 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, Arkema published a Social Commitment Charter, which was approved by the Executive Committee. It has been implemented across the organization to ensure support for its sustainable development culture. 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:

- deliver sustainable solutions driven by innovation;
- manage our activity as a responsible manufacturer; and
- cultivate an 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 **activity** 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**
- **Diversity and employee development**
- **Responsible value chain**
- **Corporate citizenship**

Charters and policies

The Social Commitment Charter is broken down into different policies that support the Group's three commitments: an Innovation Policy, a Health, Safety, Environment and Quality Policy, an energy policy, a water policy, a Human Rights Policy, a Business Conduct and Ethics Code, a Supplier Code of Conduct, a charter for the promotion and respect of the International Labour Organization's conventions, an Anti-Corruption Policy, a policy on conflict minerals and a policy on the use of Group products for medical devices applications.

These charters, policies and codes are applied across the Group and all of its subsidiaries and are all available in the Social Responsibility section on the Company's website (www.arkema.com).

4.1.2 CSR governance

Arkema's CSR governance is integrated into the Group's corporate governance. Arkema's CSR ambition, the main challenges, 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 Board of Directors by the Sustainable Development Vice-President. The scope of the CSR data audit and the findings of the independent third-party auditor responsible for this audit are presented every year to the Audit and Accounts Committee. 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.

Moreover, the Board of Directors, at its meeting of 24 February 2021, decided to create, from the close of the annual general meeting of 20 May 2021, an Innovation and Sustainable Growth Committee tasked with assessing the contribution of Arkema's innovation and strategy to environmental challenges and sustainable growth, thereby reinforcing the review mechanism of CSR issues by complementing the duties of the aforementioned Audit and Accounts Committee, as well as those of the Nominating, Compensation and Corporate Governance Committee relating to diversity.

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, and its adherence to the ten principles is clearly set out in its Communication On Progress. This commitment has been GC Advanced level since 2019. 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 and CSR 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. It is chaired by the Industry and CSR Executive Vice-President. Its members include the Human Resources and Communication Executive Vice-President and around ten corporate Vice-Presidents, all of whom are actively involved in the CSR process. It meets three times a year.

In 2019, a network of CSR correspondents was formalized. It comprises approximately 40 members, including representatives from each of the businesses that make up the Group's segments, corporate department and the main countries in which the Group operates. These correspondents work with the Sustainable Development department, which coordinates the network, to implement the CSR policy within their organization.

4.1.3 Description of key impacts, risks, and opportunities

As an economic actor, Arkema interacts with its social environment through its activities. The identification and analysis of the Group's impact on its ecosystem are part of its sustainable development process in order to mitigate the negative impacts and accentuate the positive impacts of the Group's actions, both for Arkema itself and for its stakeholders.

To identify the key impacts, risks, and opportunities, the Group looks at stakeholder expectations, which are regularly analyzed in its materiality assessment (see section 4.1.7), global megatrends (see the "Profile, ambition and strategy" section of this document) and the risk identification processes carried out notably as part of its duty of care plan (see section 4.1.5) and its consolidated non-financial information statement (see section 4.1.4).

The main risks related to non-financial issues are presented in the Group's risk map (see section 2.1 of this document).

To take into account key impacts, risks, and opportunities related to CSR, the Group looks at the entire value chain and more specifically the Group's business activities, its relationships with its business partners, including suppliers and subcontractors, and its portfolio of solutions aimed at customers and end users.

The priority matters identified in the 2019 materiality assessment are fully in line with the three commitments of Arkema's CSR policy (see section 4.1.1) and are divided into five categories:

- Development of a portfolio of sustainable solutions driven by innovation and product stewardship;
- Intensification of the circular economy;
- Climate action;
- Reduction of industrial risks; and
- Health and well-being.

For many years, Arkema has been engaged in a continuous process of reducing the main risks associated with its activities, particularly those relating to safety and the environment. 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, particularly those relating to the climate and the circular economy (for further details, see section 1.1.2 of this document).

The key issues form the basis of structured programs at Group level, with progress tracked via indicators. These programs are presented in detail in the various sections of this chapter. The key performance indicators for CSR are set out in section 4.1.8 of this chapter.

Significant events of 2020




In 2020, the Covid-19 pandemic had an impact on public health and the economy in all regions of the world. Based on the management processes described in risks related to health crises (see section 2.1.3 of this document), Arkema very rapidly defined key priorities to (i) protect the health of employees and prevent the spread of the virus at its sites and (ii) maintain the Group's operations at the level necessary to supply customers with the products they need, particularly products used to manufacture medical devices such as face masks and respirators. The absence of clusters at Arkema facilities and the resilience illustrated by the Group's results confirm the appropriateness of the various measures taken. Arkema also donated products and funds to support healthcare workers in the fight against the pandemic (for further details, see section 4.4.6 of this chapter).

Contribution to the UN Sustainable Development Goals

The Sustainable Development Goals (SDGs) defined by the United Nations 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 assessed 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. Arkema integrates the SDGs in its reporting in line with the practical guide published jointly by the United Nations Global Compact and the Global Reporting Initiative (GRI) ⁽¹⁾.

Table of the Group's contribution to the United Nations SDGs and their detailed targets

	Sustainable solutions	Responsible manufacturer	Open dialogue	Strategic objectives or programs		Sustainable solutions	Responsible manufacturer	Open dialogue	Strategic objectives or programs
 1 No poverty			1.5		 10 Reduced inequalities			10.4	
 2 Zero hunger	2.1 2.3 2.4				 11 Sustainable cities and communities	11.1 11.2			Home efficiency and insulation solutions
 3 Good health and well-being	3.8 3.9	3.5 3.6 3.9	3.5 3.6 3.9	Reduction in personal injuries	 12 Responsible consumption and production	12.2 12.3 12.4 12.5	12.4 12.5	12.6	Solutions contributing to more sustainable use of natural resources
 4 Quality education		4.3 4.4 4.5	4.3 4.4 4.5 4.7		 13 Climate action	13.1	13.1 13.3		Solutions contributing to climate action Reduction in greenhouse gas emissions
 5 Gender equality			5.5	Increase in gender diversity	 14 Life below water	14.1	14.1 14.2		
 6 Clean water and sanitation	6.1 6.2 6.3 6.4	6.3 6.4		Reduction of effluent releases in water (COD)	 15 Life on land	15.1 15.5	15.5		Reduction in air emissions (VOC)
 7 Affordable and clean energy	7.1 7.2 7.3	7.2 7.3		Renewable energy and electricity storage solutions Increase in energy efficiency	 16 Peace, justice and strong institutions			16.5	
 8 Decent work and economic growth	8.8	8.8	8.4 8.5 8.7 8.8	Reduction in process events	 17 Partnerships for the goals	17.17	17.14	17.14	Increase in supplier engagement
 9 Industry, innovation and infrastructure	9.1 9.4 9.5	9.4		Electronics solutions					

 Strategic contribution (through strategic objectives or programs)
 Direct contribution (resulting from voluntary initiatives)
 Indirect contribution (resulting from the Group's activities)

(1) "Integrating the SDGs into Corporate reporting: A Practical Guide".

The strategic contribution to the SDGs that relate to Arkema's sustainable solutions commitment is demonstrated by the Group's choice of the five 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 long-term targets, which are presented in section 4.1.8 of this chapter.

In line 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, which has since been rolled out widely. This process is described in section 4.2.4 of this document.

4.1.4 Consolidated non-financial information statement

In compliance with articles L. 225-102-1 and L. 22-10-36 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 included in the consolidation scope), as well as 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 4.1.7 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 accidents 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 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, the risk of poor social and environmental performances by suppliers or subcontractors, and the risk of scarcity of non-renewable resources.

The Group's governance of CSR issues is described in section 4.1.2 of this chapter.

The non-financial information statement for the year ended 31 December 2020, 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 4.5.6 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/global/en/social-responsibility/>.

I Cross-reference table for the non-financial information statement

Articles L. 225-102-1, L. 22-10-36 and R. 225-105 of the French Commercial Code (<i>Code de commerce</i>)	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	2.1 (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	4.1.5 and 4.4.3

Articles L. 225-102-1, L. 22-10-36 and R. 225-105 of the French Commercial Code (<i>Code de commerce</i>)	Sections in this document
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	4.1.5 and 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, 4.2.5 and 4.4.4
Social commitments to the circular economy	4.2.3 and 4.3.3.4
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 welfare	4.2.5.4
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	4.4.1.7
Actions to counter discrimination and promote diversity	4.4.1.6
Measures to promote the recruitment of people with disabilities	4.4.1.6

4.1.5 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 (see section 6.1.2 of this document). 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.

Management of the duty of care plan

The duty of care plan is reviewed – overall and with respect to its implementation and the effectiveness of measures undertaken – 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.

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 procedures used to regularly assess the situation of the Group's activities and subsidiaries with regard to the risk map are described in more detail in section 2.2.4 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 2019 materiality assessment presented in section 4.1.7 of this chapter, are taken into account in the duty of care plan.

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 issued its Human Rights Policy in 2018 in order to make its commitments and management of the risks in this area clearer and more visible for all stakeholders. This policy is available both internally and externally. In 2020, the Group used the available internal audit data to identify and analyze any potential Human Rights violations related to its activities. The results confirmed the absence of any serious violations. 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 2020, the TRIR, including accidents involving Group and subcontractor employees, was 1.0, a record low and a sharp improvement on previous years' figures. In fact, Arkema's performance in terms of its TRIR is one of the best in the chemicals industry. Virtually stable over the past three years, its PSER was 4.0 in 2020, with an action plan implemented to reduce this rate. 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, as 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 4.3.2 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 4.2.5 and 4.3.2 of this chapter; and

- 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 2020, 36 cases of occupational illness were reported Group-wide. The frequency rate of 1.0 per million hours worked held steady from 2019, a year marked by sharp improvement on previous years. 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 compared with 2012) for which targets have been set for 2030. One relates to the amount of volatile organic compounds (VOCs) released into the air (VOC EFPI). In 2020, the VOC EFPI was 0.58, below the 2019 figure and in line with the 0.35 target set for 2030. The second relates to chemical oxygen demand (COD) in effluent discharges (COD EFPI). In 2020, the COD EFPI was 0.45, well below the 2019 figure and in line with the 0.40 target set for 2030. 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 climate change and responsible resource management, two 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. In 2019, the Group stepped up its program aimed at combating global warming and set a new objective in line with the Paris Agreement. The effectiveness of the measures undertaken is monitored via two strategic indicators for which targets have been set for 2030. The first relates to greenhouse gas emissions from operations at the Group's industrial sites (GHG indicator). In 2020, absolute GHG emissions compared with 2015 were 0.77, down significantly on the 2019 figure and consistent with the 0.62 target set for 2030. One-third of this reduction is attributable to lower business volumes due to the health crisis, while the other two-thirds result from the Group's voluntary actions in deploying its climate plan. For further details, see section 4.3.3.2.1 of this chapter. The second indicator measures net energy purchases (Energy EFPI compared with 2012), the intensity of which reflects the consumption of energy whose production generates greenhouse gas emissions. In 2020, the Energy EFPI was 0.90, down on the 2019 figure

despite unfavorable energy efficiency conditions at certain sites. This decrease is coherent with the 0.80 target set for 2030. For further details, see section 4.3.3.2.2 of this chapter.

To strengthen its commitment to promote responsible resource management, Arkema set a new target in 2020 for water withdrawals as a percentage of Group sales, aiming for a 10% reduction between 2019 and 2022. In 2020, despite the drop in the absolute value of water withdrawals, the indicator rose 9% due to the sharp drop in sales in the context of the global health crisis, which involved a de-optimization of certain industrial yields.

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, 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. At end-2020, over 1,600 suppliers had been assessed, and CSR scores had risen for 59% of suppliers whose assessments had been updated. To promote responsibility across its value chain and strengthen its commitment to responsible procurement, the Group defined a new strategic indicator in 2020, which shows the percentage of purchasing spend from relevant suppliers covered by a CSR assessment. The indicator stood at 68% in 2020, and the Group aims to reach 80% by 2025.

Some of the Group's products use plant-based raw materials. If raw material producers are farmers, the assessment system outlined above is not always 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 friendly and 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 4.3.2.4 of this chapter.

For non-accidental incidents liable to affect Human Rights and fundamental freedoms, human health and safety and the environment, 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.

Report on the implementation of the duty of care plan

For risks related to 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 in terms of total recordable injury rate (TRIR < 1.0; revised in 2020 to an even more ambitious target) and the number of process safety events (PSER < 3.0; with a strengthened action plan to achieve the PSER target); and
 - for 2030 in terms of environmental impact concerning the four strategic indicators: a climate indicator (GHG – 38% in absolute terms compared with 2015) and three intensive emission indicators (VOC EFPI – 65%, COD EFPI – 60% and Energy EFPI – 20% compared with 2012);
- 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.

Concerning risks relating to the activities of suppliers and subcontractors, the programs under way meet duty of care expectations. The following initiatives helped step up these programs in 2020:

- extended roll-out of the Together for Sustainability (TfS) program, with a 2025 target of covering with a TfS assessment 80% of the Group's purchasing spend from relevant suppliers (see details in section 4.4.4.5 of this document); and
- in addition to the Pragati project for responsible castor farming, the creation of an independent secretariat to promote good agricultural practices more widely (see details in section 4.4.4.3 of this document).

Whistleblowing system and reports

The Group has a whistleblowing system that complies with both the requirements of the law on duty of care and the French Sapin II Law. For further details, see section 4.4.2.5 of this chapter.

4.1.6 Alignment with the TCFD recommendations

As part of its commitment to climate action (see details in section 4.3.3.2 of this chapter), Arkema supports the recommendations issued by the Taskforce for Climate-related Financial Disclosures (TCFD). These recommendations are designed to provide a framework for business communication on climate

change by organizing information into four key areas: governance, strategy, risk management, as well as metrics and targets. More detailed information can be found in this document and in the CDP climate change questionnaire to which Arkema responds every year and which is aligned with the TCFD recommendations.

	Further details	
	Section of this document	CDP questions
GOVERNANCE		
The presentation of CSR governance in section 4.1.2 of this chapter includes topics relating to climate change. In addition, a steering committee dedicated specifically to Arkema's climate plan was set up in 2019.	4.1.2	C1.3
Every year, performance shares are granted to the Chairman and Chief Executive Officer and to the Group's executives and employees. The climate-related objective of reducing GHGs has been one of the key performance indicators since 2019.	4.3.3	C1.3.a
The achievement rate of this objective therefore has an impact on the allocation of performance shares.	4.4.1.5	C1.1.b
	3.5.1	C1.2
		C1.2.a
STRATEGY		
Main risks:		C2.3.a
• Physical risks	2.1.3	
Acute physical risks related to climate change (extreme weather events, such as floods, droughts and storms) that could (i) cause significant damage to certain sites and therefore impact the operations carried out at those sites and (ii) generate significant costs due to insurance deductibles and damage not covered by insurance policies.		
• Transition risks	2.1.2	
The introduction or strengthening of regulations relating to the pricing of GHG emissions (emissions trading systems such as the ETS, carbon taxes, taxes on energy purchases, etc.) could have a negative impact on the Group's activities by increasing operating costs and reducing profitability.		
New regulations affecting the fluorogas market , which could force the Group to sharply reduce, or even cease, the sale or production of certain products.		
Main opportunities:		C2.4.a
• Resource efficiency		
Energy: reduced energy use thanks in particular to the Arkenergy program, driving a reduction in production costs and environmental impacts.	4.3.3.2.2	
Renewable raw materials: development of specialty materials based on renewable raw materials, such as Rilsan® polyamide 11, to preserve non-renewable resources and meet high market expectations.	1.1.2.1	
	4.2.3	
• Markets		
Electric mobility: development of new solutions to improve the performance of batteries designed for energy storage in the fast-growing low greenhouse gas emission electric vehicle market.	1.1.2.3	
Transportation: development of lightweight materials for the aeronautics and automotive industries, reducing fuel consumption and therefore greenhouse gas emissions.	1.1.2.2	
Construction: development of solutions to improve building energy efficiency, reducing heating and air-conditioning needs and therefore greenhouse gas emissions.	1.1.2.6	
Climate-related scenarios:		C.3.1.a
Preliminary work on climate-related scenarios was initiated in 2018. Extreme climate-related rainfall was assessed under the RCP 2.6 and RCP 8.5 scenarios. The analysis shows that climate-related flood risks are limited for Group sites in the short term.		C.3.1.b

	Further details	
	Section of this document	CDP questions
RISK MANAGEMENT		
<p>The procedures for identifying, assessing and managing financial and non-financial risks described in section 2.2 of this document cover the risks related to climate change. These risks are described under "Regulatory requirements and CSR expectations" and "Natural disasters and climate change", presented respectively in sections 2.1.2 and 2.1.3 of this document.</p> <p>To manage the acute physical risks related to climate change, Arkema is defining scenarios and determining alternative production locations within the Group for the majority of its sites in order to ensure continuity of service to its customers. For transition risks related to new regulations on GHGs and fluorogases, the Group is supported by regulations experts to anticipate regulatory changes and by its R&D teams to develop alternative solutions with lower GHG emissions.</p>	2.1	C.2.2
	2.1.2	C.2.2.a
	2.1.3	
	2.2	
METRICS AND TARGETS		
Greenhouse gas emissions (Scopes 1, 2 and 3)	4.3.3.2	C4.1, C4.1.a,
Targets relating to climate and performance	4.5.2.4	C4.2, C4.2.b,
<ul style="list-style-type: none"> for Scope 1 and Scope 2 greenhouse gas emissions as defined in the Kyoto Protocol and substances listed in the Montreal Protocol: <ul style="list-style-type: none"> by 2030, 38% reduction in absolute emissions compared with 2015. for Scope 3 greenhouse gas emissions as defined in the Kyoto Protocol: <ul style="list-style-type: none"> by 2030, 19% reduction compared with 2015 levels in absolute emissions related to fuel and energy (excluding Scopes 1 and 2), waste produced, and upstream and downstream transportation and distribution. commitment that raw materials suppliers representing 82% of GHG emissions related to our purchases set Science-Based Targets (SBTs) on their Scopes 1 and 2 by 2025. 	4.5.1	C6.1, C6.3, C6.5
<p>The Group also has an intensive objective to reduce net energy purchases in terms of EFPI by 20% between 2012 and 2030. This second objective contributes directly to reducing Scopes 1, 2 and 3 greenhouse gas emissions.</p> <p>Internal carbon price used in the industrial investment analysis and approval process.</p>		



4.1.7 Stakeholders and materiality assessment

The Group's CSR approach, which includes an open dialogue, aims to establish a responsible and value-creative value chain shared by Arkema and its stakeholders, as presented in the "Profile, ambition and strategy" section.

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 stakeholders in its ecosystem.

Stakeholder	Context and purpose of dialogue	Key stakeholder expectations in the area of CSR	Form of dialogue
Customers	Business relationship and collaboration aimed at meeting the current and future needs of customers and end users	<p>Innovative, sustainable, healthier and more environmentally friendly solutions tailored to specific needs</p> <p>Collaborative innovation and partnerships</p> <p>Circular economy and climate change</p> <p>Responsible procurement</p>	<p>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:</p> <ul style="list-style-type: none"> • dedicated management of global key accounts as part of a commercial excellence program; • joint innovation programs with customers, particularly with regard to climate issues and resource management and including life-cycle analysis if required; • development of new digital solutions that increase value added for customers and partners; • a global, online survey to assess overall satisfaction. <p>For further details, see the section on Commercial excellence in the "Profile, ambition and strategy" section of this document.</p>
Suppliers	Business relationship and collaboration aimed at meeting the current and future needs of the Group and its customers	<p>Circular economy and climate change</p> <p>Collaborative innovation and partnerships</p>	<p>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, particularly with regard to climate issues and resource management.</p> <p>Arkema encourages its suppliers to commit to a corporate social responsibility program by conducting CSR performance assessments.</p> <p>For further details, see section 4.4.4 of this chapter.</p>
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	<p>Collaborative innovation and partnerships</p> <p>Contribution to the social and economic dynamics of territories</p>	<p>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.</p> <p>Partnerships such as those involving the Group's innovation platforms contribute to fulfilling the United Nations' Sustainable Development Goals (SDGs), particularly SDG 12, which relates to resource management, and SDG 13 on climate action.</p> <p>For further details, see sections 1.1.2 and 1.1.5 of this document.</p>

Stakeholder	Context and purpose of dialogue	Key stakeholder expectations in the area of CSR	Form of dialogue
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	Long-term value creation Preventive management of ESG (Environment, Social, Governance) risks Non-financial performance (ESG criteria)	<ul style="list-style-type: none"> • Results presentations; • Meetings with and days dedicated to 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.
Employees and employee representative bodies	Dialogue with employee representative bodies and direct dialogue with employees	Training and individual and collective development Diversity and equal opportunities Well-being at work and work-life balance	<ul style="list-style-type: none"> • 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 sections 4.4.1.4 and 4.4.1.7 of this chapter.
Neighboring communities	Neighbors and communities that interact locally with Group sites	Prevention and management of industrial risks Transparency and dialogue Contribution to the social and economic dynamics of territories	The Common Ground® initiative described in section 4.4.6.2 of this chapter promotes local dialogue at each of the Group's sites.
Civil society and NGOs	Proactive and reactive dialogue	Climate change and circular economy Prevention and management of industrial risks Product stewardship Business ethics and transparency	<ul style="list-style-type: none"> • 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	Compliance with laws and regulations Prevention and management of industrial risks Product stewardship Contribution to the social and economic dynamics of territories	<ul style="list-style-type: none"> • 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	Climate change and circular economy Prevention and management of industrial risks Product stewardship	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 2019, the Group conducted its second materiality assessment, a formal process of listening and consulting with stakeholders on CSR topics. Three years since the first analysis was conducted, this new exercise in stakeholder engagement has been extended to include the Group's three key regions – the Americas, Asia and Europe – and consultation of a broader range of stakeholders.

It is generally accepted practice to carry out a materiality assessment every three years. Arkema therefore considers the materiality assessment conducted in 2019 to be valid for a three-year period.

This materiality assessment is based on an innovative approach used to clarify and strengthen the Group's CSR policy to cover both historical and rising issues. The methodology has brought genuine added value in confirming the adequacy of CSR initiatives already in place and suggesting pathways for improvement. Given the vast geographic scope covered by the assessment, decisions can be made at the global (corporate) level that can clearly be adapted locally to the seven countries directly involved.

The materiality assessment was carried out with the help of a third-party expert (*Des Enjeux et des Hommes* and C3 Consensus Europe). It was conducted in two phases, as follows:

1. A preparatory phase, during which the Group's stakeholders were mapped and the list of historical or rising CSR issues were identified.

Mapping of the Group's stakeholders in 7 countries

The map covered stakeholders at the corporate level and in seven countries (France, Italy, the United States, Mexico, China, Malaysia and Singapore) located in the three key regions in which the Group operates. These countries were chosen for their economic importance, domestic demographics and multicultural representation within the Group. Several thousand employees and external stakeholders were identified to take part in interviews, including customers, suppliers, research partners, the financial community, shareholders, non-financial rating agencies, employees and employee representatives, neighboring communities, civil society and NGOs, the media, public authorities, and professional associations.

28 historical and rising CSR issues

The list of 28 CSR issues was prepared based on the points identified in the 2016 materiality assessment, preliminary interviews with key internal stakeholders, recognized international CSR guidelines, a detailed literature review, benchmarking against industry peers and a workshop led by a predictive expert. The issues were divided into two categories:

- 14 "historical" issues of proven importance to the Group. In line with its continuous improvement philosophy, the Group wanted to interview stakeholders to measure its maturity on these key issues; and
- 14 "rising" issues. The Group wanted to understand the importance of these issues for stakeholders in order to transpose them into its CSR policy.

Historical issues for estimation of maturity		Rising issues for estimation of importance	
1	Sustainable solutions driven by innovation	15	Developing of a CSR culture
2	Product stewardship	16	Responsible procurement and supplier CSR commitment
3	Collaborative innovation	17	Responsible personal data management
4	Prevention and management of industrial risks	18	Integration of digital technology into company activities
5	Occupational health and safety	19	Integration of CSR criteria into the Group's mergers and acquisitions policy
6	Greenhouse gas emissions reduction and energy management	20	Consideration of circular economy challenges
7	Water and waste management	21	Taking into account climate change-related risks for the company
8	Responsible governance	22	Reliable and educational communication on the characteristics and the proper use of products
9	Business ethics	23	Carbon offsetting and positive contribution to biodiversity
10	Transparency	24	Fair remuneration and social protection
11	Stakeholder dialogue	25	Well-being at work and work-life balance
12	Labor relations and respect for Human Rights	26	Promoting the positive impact of products and solutions
13	Training and individual development	27	Taking into account new end-consumer expectations
14	Diversity and equal opportunities	28	Contribution of the Group to the social and economic dynamics of territories

2. A consultation phase, involving over 40 in-depth interviews ("qualitative" consultation) with a wide range of stakeholders in the Group's three key regions, and an online survey ("quantitative" consultation) sent to over 6,000 employees and more than 2,400 external stakeholders.

The participation rate in the online survey was 26%, twice as high as the usual rate for this type of survey.

The answers from internal and external stakeholders were compared by analyzing the survey findings and each issue was ranked. The findings are shown in two materiality matrices:

- the maturity matrix: the 14 historical issues as perceived to reflect Arkema's maturity; and
- the importance matrix: the 14 rising issues as perceived to reflect their importance for Arkema.

Table of priority matters

MAINTAIN EXCELLENCE (continuous)	
Product stewardship	
Occupational health and safety	
Prevention and management of industrial risks	
Business ethics	
Diversity and equal opportunities	
SEIZE OPPORTUNITIES (short- or medium-term change)	
Sustainable solutions driven by innovation	
Collaborative innovation	
Integration of digital technology into company activities	
Consideration of circular economy challenges, including water and waste management	 
Greenhouse gas emissions reduction and energy management	
Training and individual development	
Well-being at work and work-life balance	



sustainable solutions;



responsible manufacturer;



open dialogue

The materiality assessment confirmed the adequacy of the Group's CSR policy, which is structured around its three commitments, and enabled it to update its CSR priorities and identify issues that offer strategic opportunities for both the Group and its stakeholders. Consequently, the Executive Committee approved the global initiative of this materiality assessment and selected actions to take, which were published on the Group's website and intranet in June 2019. More specifically, five priority areas were defined, covering issues identified in this assessment and relating to Arkema's mission laid down in its business model presented in the

The detailed matrices are available on the Group's website:

<https://www.arkema.com/global/en/social-responsibility/vision-and-strategy/materiality-analysis/>








Given the findings of the stakeholder survey, the Group decided to rank the most important historical and rising issues with two levels of priority (priority or important) and two levels of action (continuous, or short- or medium-term change).

Priority issues include points that were identified as priorities in 2016 as well as the most relevant rising issues. The priority issues that would involve a short-term change to make the Group's activity more sustainable are included under "seize opportunities". The other priority issues are grouped together under "maintain excellence".

The table below presents the priority issues on the two levels of action. The full table is available on the Group's website.

"Profile, ambition and strategy" section of this document: "Develop, as a responsible manufacturer, innovative solutions adapted to our customers' main challenges and support them in their quest for sustainable performance".

Action plans for the five priority areas were updated in 2020 and are described in the table below. The indicators or targets mentioned are presented in detail in section 4.1.8 of this document.

Priority areas		Corresponding priority issues	Action plans	Objectives
Sustainable solutions		Sustainable solutions driven by innovation Collaborative innovation Product stewardship	Develop the range of solutions: <ul style="list-style-type: none"> continue and reinforce collaborative innovation and partnership initiatives in different formats; and implement the sales portfolio assessment program in light of sustainability: <ul style="list-style-type: none"> deployment of the program to achieve 100% coverage in 2024, definition of a long-term target in 2020: percentage of sales that contribute significantly to Sustainable Development Goals (ImpACT+). 	By 2024, 100% of our sales portfolio assessed in light of sustainability. By 2030, 65% of ImpACT+ sales.
Circular economy	 	Circular economy, including water and waste management Collaborative innovation	Intensify the circular economy approach across the entire value chain based on the four drivers defined in 2020: <ul style="list-style-type: none"> maximize the use of renewable and recycled materials; step up the responsible management of materials, waste, water and energy at our sites; take action to keep the products and materials we market in the use loop, through eco-design and the development of recycling systems; and strengthen tools for measuring circularity and extend life-cycle assessments. 	By 2022, 10% reduction in water withdrawals as a percentage of sales, compared with 2019. By 2023, 50% of sales volume covered by a life-cycle assessment.
Climate		Greenhouse gas emissions reduction and energy management	Develop a climate plan in line with the Paris Agreement: <ul style="list-style-type: none"> update climate goals to surpass greenhouse gas emission targets achieved and, in doing so, better meet climate change challenges: <ul style="list-style-type: none"> new target introduced in 2019: absolute reduction in greenhouse gas emissions based on a scientific approach. implement the climate plan based on the following levers: <ul style="list-style-type: none"> innovate and improve production processes; optimize energy efficiency; and step up purchases of low-carbon energy. 	By 2030, 38% reduction in the absolute value of greenhouse gas emissions* compared with 2015. <i>* Scope 1 and Scope 2 as defined in the Kyoto Protocol + substances listed in the Montreal Protocol</i> By 2030, 19% reduction compared with 2015 levels in absolute emissions related to fuel and energy (excluding Scopes 1 and 2), waste produced, and upstream and downstream transportation and distribution. Commitment that raw materials suppliers representing 82% of GHG emissions related to our purchases set Science-Based Targets (SBTs) on their Scopes 1 and 2 by 2025.
Industrial risks		Prevention and management of industrial risks	Continue the actions taken while still aiming for the same level of excellence in process safety: <ul style="list-style-type: none"> reduction target for the number of process safety events; main drivers implemented: <ul style="list-style-type: none"> continue the regular analysis of industrial risks and the ongoing implementation of the measures necessary to manage them; and strengthen process safety procedures. 	By 2025, reduction in the process safety event rate (PSER) to less than 3.0.
Well-being and health	 	Well-being at work and work-life balance Occupational health and safety	Define a Group-wide, in-depth approach to work-life balance: <ul style="list-style-type: none"> structure the global policy on workplace well-being; evaluate the initiatives undertaken via employee engagement surveys. Continue the actions taken while still aiming for the same level of excellence in personal safety: <ul style="list-style-type: none"> reduction target for the total recordable injury rate (TRIR). 	By 2025, reduction in the total recordable injury rate (TRIR) to less than 1.0.



sustainable solutions;



responsible manufacturer;



open dialogue

In addition to working on these priority areas and maintaining a continuous improvement approach, the Group has decided to:

- reinforce employees' skills in digital technology and corporate social responsibility so as to better integrate these dimensions in all activities; and
- strengthen stakeholder relations locally with the Common Ground® initiative (described in section 4.4.6.2 of this document) and internationally through formal discussions with a panel of stakeholders.

As such, in 2020 the Group brought together about ten representatives from each category of external European stakeholders and Arkema executives who represent the Business Lines, procurement and sustainable development. They chiefly discussed two key issues faced by the Group, the circular economy and climate change. Expectations were expressed concerning the need for collaboration across the entire value chain and pursuit of the Group's social contribution in its regions in three areas: labor, environmental and economic issues. This dialogue will continue in 2021, with similar meetings planned in China and the United States.



4.1.8 CSR key performance indicators

The following table summarizes Arkema's key CSR performance indicators. These indicators, as well as the associated long-term targets, are reviewed annually by the Executive Committee, which is responsible for setting them and, where necessary, updating them. They reflect Arkema's determination to take an active role in the sustainability transition, in line with the Group's ambition described in the "Profile, ambition and strategy" section of this document, as well as its determination to address the major challenges and priority issues identified in the materiality assessment presented in section 4.1.7 of this chapter.

A long-term target was set in 2020 for the indicator relating to the percentage of sales that contribute significantly to the Sustainable Development Goals, thereby strengthening the Group's commitment to providing sustainable solutions. The Group also introduced a new indicator, the percentage of purchases covered by a CSR

assessment, reflecting its determination to pursue the development of corporate social responsibility objectives in its upstream value chain.

The 2025 TRIR target was revised to a more ambitious level, in light of the performance achieved in 2020. Diversity objectives were also reviewed, with higher targets set for 2030 to reflect the Group's geographic expansion and its commitment to equal opportunities, and in clear recognition of the positive contribution that diversity makes to the company's performance.

Tracking and analyzing these KPIs enables the Group to validate, year after year, the performance of its CSR process and upgrade it as required. See the various sections of this chapter for further details.

	Target year	Target	2020	2019	2018
SUSTAINABLE SOLUTIONS					
Percentage of ImpACT+ sales ⁽¹⁾	2030	65%	50%	46%	43%
Percentage of sales from products made from renewable raw materials			10%	9%	9%
RESPONSIBLE MANUFACTURER					
Percentage of AIMS audited sites	2025	100%	82%	80%	74%
Safety					
Total recordable injury rate (TRIR) ⁽²⁾	2025	<1.0	1.0	1.4	1.3
Process safety event rate (PSER) ⁽³⁾	2025	<3.0	4.0	3.7	4.4
Environmental footprint					
Greenhouse gas (GHG) emissions ⁽⁴⁾ (in absolute terms compared with 2015)	2030	0.62	0.77	0.87	0.90
Volatile organic compound (VOC) emissions (in EFPI terms compared with 2012)	2030	0.35	0.58	0.60	0.62
Chemical oxygen demand (COD) (in EFPI terms compared with 2012)	2030	0.40	0.45	0.50	0.59
Net energy purchases (in EFPI terms compared with 2012)	2030	0.80	0.90	0.91	0.88
OPEN DIALOGUE					
Employee development and diversity					
Percentage of women in senior management and executive positions	2030	30%	23%	23%	21%

	Target year	Target	2020	2019	2018
Percentage of non-French nationals in senior management and executive positions	2030	50%	41%	40%	39%
Sustainable procurement					
Percentage of purchasing spend from relevant suppliers covered by a TFS assessment ⁽⁵⁾	2025	80%	68%	68%	N/C

(1) The percentage of sales contributing significantly to the United Nations SDGs (ImpACT+) was calculated on the basis of an assessment of 72% of the Group's third-party sales in 2020 and 44% in 2018 and 2019.

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

(3) 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).

(4) Greenhouse gas emissions cover direct Scope 1 emissions and those of ozone-depleting substances, and indirect Scope 2 emissions.

(5) Relevant suppliers are recurrent suppliers representing 80% of the Group's purchasing spend.

Improvement process and recognition

For several years now, Arkema has been strongly engaged in a process to improve its CSR performance. The Group's approach is regularly assessed by external stakeholders, particularly extra-financial rating agencies and customers, providing the Group with areas for improvement that will enable it to rank among the best performing companies in the industry. As requested by Group customers, site audits may also be performed by independent auditing firms to supplement this assessment.

In 2020, Arkema was included in the Dow Jones Sustainability World Index and joined S&P Global's Sustainability Yearbook 2021, receiving the Bronze class distinction. This recognition, and the general improvement in extra-financial ratings, confirm the appropriateness of the Group's CSR approach.

Member of

**Dow Jones
Sustainability Indices**

Powered by the S&P Global CSA

Included in the DJSI World
and DJSI Europe indices
The Sustainability Yearbook 2021,
Bronze Award



Inclusion in the Europe 120 and
Eurozone 120 indices since 2015



"A" rating since 2017



In 2020, an "A-" rating was obtained
for Climate Change and a "B" rating
for Water Security



Arkema ranks among the top 1%
of companies in the sector
since 2014



"C+" rating. Arkema is in the top
worldwide decile

4.2 Sustainable solutions

DEVELOP INNOVATIVE SOLUTIONS ADAPTED TO OUR CUSTOMERS' MAIN CHALLENGES AND SUPPORT THEM IN THEIR QUEST FOR SUSTAINABLE PERFORMANCE

4.2.1 Management of sustainable solutions

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. As indicated in section 4.1.7 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 address the 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.

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 Product Stewardship Committee meets at least twice a year to review progress and decide on priorities and action plans to improve the responsible management of the range of solutions. The new committee comprises six members from the Executive Committee, which oversees business and industrial operations, and members from the Sustainable Development, Research and Development and Legal departments. Every year, the Sustainable Development Vice-President presents the Executive Committee with an overview. The overall governance of sustainable development is presented in section 4.1.2 of this chapter.

To supplement its innovation and product stewardship processes, Arkema has implemented a program to systematically assess its portfolio of solutions in light of sustainability criteria. The program is presented in section 4.2.4 of this chapter.

In addition, to structure and speed up the transition of Arkema's activities toward a circular economy model, as described in section 4.2.3 of this chapter, a Circular Economy Steering Committee was set up in 2020. It comprises the Industry and CSR Executive Vice-President, who is a member of the Executive Committee, the Vice-Presidents of Research and Development, Sustainable Development, Processes and the Environment, and the Renewables and Recycling Scientific Director. The steering committee meets at least twice a year. It oversees programs relating to the circular economy and the progress made in this area.

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. In 2020, they accounted for 78% of the total number of patents filed.

	2020	2019	2018
Number of patent applications filed during the year relating to sustainable development	158	149	154

4.2.3 Circular economy

4.2.3.1 Definition

The circular economy is a systemic economic model that ensures that goods and services are produced in a sustainable way, by reducing the consumption and waste of resources such as raw materials, water and energy, and the production of waste.

The aim is to make the transition from the “linear” model currently dominant in our societies, characterized by a “take-make-dispose” approach, which has reached its limits, particularly in terms of its impacts on climate change, biodiversity and the depletion of resources, to a “circular” model.

The circular economy aims at decoupling economic activity from the consumption of finite resources and environmental impacts, and therefore contributes to United Nations Sustainable Development Goal 12 “Responsible consumption and production”.

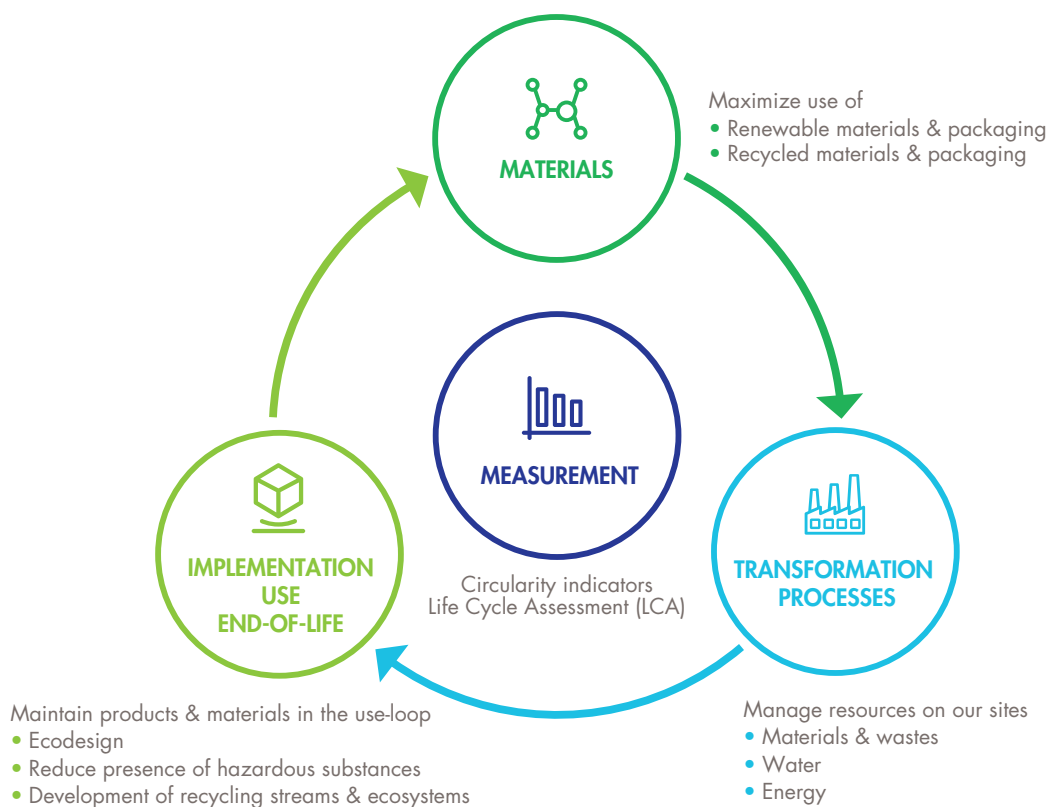
It is based on three fundamental principles:

- design products and services that minimize waste and pollution;
- keep products and materials in use; and
- regenerate natural systems.

4.2.3.2 Circular economy approach

The Group has made the circular economy a priority area, in line with the findings of the materiality assessment conducted in 2019 and presented in section 4.1.7 of this document. The circular economy challenge and the changes it requires apply to both the Group’s solutions and its industrial operations, and Arkema is speeding up and strengthening its actions in this area.

Arkema’s approach to the circular economy and responsible resource management covers the entire value chain and is based on four main drivers:



4.2.3.3 Material selection

A pioneer in the use of raw materials made from biomass, as illustrated by the use of castor oil to produce Rilsan® specialty polyamides, Arkema makes every effort to maximize the use of circular materials in its products and packaging, including recycled or non-virgin materials and materials from renewable sources. The “Natural resources management” strategic innovation platform, described in section 1.1.2.1 of this document, fully supports this dynamic.

The new facility being built in Singapore that will be used to produce 100% bio-based amino 11 monomer and Rilsan® polyamide 11 will expand Arkema’s offer of high performance materials made from renewable sources as of 2022. The Group issued its first green bond in 2020 to finance the construction of the new plant (see section 5.5 of this document).

The Group works extensively with its suppliers to measure the percentage of renewable and recycled materials in purchased products and packaging, to encourage the development of circular solutions, in particular via partnerships, and to secure the supply of strategic materials.

In addition, the Group's activities are encouraged to apply eco-design principles, and more particularly the use of circular materials and packaging, right from their solutions' initial phases of development.

This ongoing commitment was again demonstrated in 2020 by the fact that products at least 20% made from renewable raw materials accounted for around 10% of Group sales. Renewable raw materials include bio-sourced materials (*i.e.*, from biomass, plant or animal), and materials certified renewable by a Mass Balance approach.

4.2.3.4 The circular economy in transformation processes

Arkema intends to deploy resource management best practices for raw materials, waste, water and energy at all its sites. The Group has set objectives and implemented programs and initiatives in this regard. Details are provided in section 4.3.3.3 of this document.

4.2.3.5 Development, use and end-of-life management

Arkema works with its partners across the value chain to design and develop solutions that help keep products and materials in the use loop.

Eco-design

In cooperation with its customers and suppliers, Arkema works for each of its business lines and technology platforms to identify the most relevant circularity drivers, such as optimization of the quantity of materials used, extension of product lifespan, separability of materials and components, recycling and degradability.

Various training initiatives have been carried out with the teams involved in innovation within the Group's businesses to ensure that these issues are taken into account from the earliest phases of the design process.

Reducing the presence of hazardous materials in our products

The presence of certain substances in our products can affect their recyclability. Arkema is committed to implementing a product stewardship approach that takes this issue into account, thereby providing its customers with safer solutions. The Group's policy is described in section 4.2.5 of this chapter.

FOCUS

Bostik Purefix®: stick fast and breathe easy with Purefix® 0% Phthalates & 0% Solvents

Bostik is going beyond the regulatory requirements on phthalates and solvents by removing them from the formula for its next-generation adhesives and replacing them with ingredients that are safer for consumers, while also improving adhesive performance.

Extending the lifespan of customer products

Arkema aims to constantly improve the lifespan of both its own and its customers' products.

Kynar® PVDF, for example, is a long-lasting coating solution. In the Kynar Aquatec® range, used for reflective roofs that reduce buildings' energy consumption, it preserves the white finish for an especially long time without maintenance.

Durastrength® acrylic impact modifiers extend the lifespan and enhance the performance of rigid and flexible PVC in applications such as siding, fences, decks, rails, pipes and injection-molded parts.

Recycling our customers' products

Arkema is developing a number of solutions that make 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 parts made from Elium® 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 bottles can be reused, notably for beer manufacturers.

The adsorption business has developed a solution that increases the recycling rate of roadwork scrap. Using Cecabase RT® additives in 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.

The circular economy is based on interaction between the various participants in an ecosystem and therefore requires the development of partnerships and consortiums to set up recycling systems.

In 2019, for example, Arkema introduced Virtucycle®, a new recycling program for high performance polymers in partnership with Agiplast, which specializes in the manufacturing and regeneration of engineering plastic compounds. The program enables customers to partner with Arkema in post-industrial and post-consumer recycling projects for its high-performance polymers.

In Europe, the European MMAtwo project was launched in 2018 to develop a chemical recycling process for PMMA that is to be validated on an industrial scale within three years. This initiative brings together 13 partners, including four French businesses representing all stages in the value chain. The European Union is providing €6.6 million of the project's funding, as part of its Horizon 2020 program.



FOCUS

Cyclon: the shoe you will never own

Today, most shoes are designed within a linear life cycle: Make-Use-Dispose.

The newly launched Cyclon shoe from On-Running consists of a subscription program for a premium running shoe made from bio-based materials, ensuring, once returned, 100% recycling into a new shoe.

The ideal balance of circular economy and high performance came to life thanks to the partnership with Arkema and its Advanced Bio-Circular materials concept, which involves combining high performance polymers such as Pebax® Rnew®, made from castor beans, with the Virtucycle® recycling program, developed by Arkema for this category of polymers to help our customers to manage the end-of-life of their products.

4.2.3.6 Measurement

Measuring performance is an integral part of the plan for transitioning to a circular economy approach. Arkema has therefore introduced a number of indicators relating to products and industrial processes.

	2020	2019	2018
Percentage of sales from products made from renewable raw materials	10%	9%	9%
Percentage of sales volume covered by a full life-cycle assessment	22%	22%	20%
Water withdrawals from industrial sites (cu.m/€ million of sales)	14.5	13.3	13.5

Product life-cycle assessments

To assess the environmental performance of its products, Arkema uses life-cycle assessments (LCAs) 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's LCA Network, which is instilling this LCA culture across the organization, in particular through periodic employee training courses, and durably 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.

A full life-cycle assessment was carried out on 22% of the sales generated in 2020. 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.

The Group intends to significantly increase the percentage of sales covered by LCAs in coming years to reach at least 50% by the end of 2023.

4.2.4 Management of the solutions portfolio

"ARCHIMEDES" Program: assessment of the solutions portfolio

To shift its product range more assertively toward sustainable solutions, in 2020 Arkema continued the program it started in 2018 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;

- medium- and long-term trends in the regulatory framework and market expectations in terms of sustainable solutions; 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.

When assessing the solutions portfolio, in terms of both the products and the raw materials used, particular attention is paid to the presence of substances identified in the regulations as being substances of very high concern (SVHCs), or which nonetheless meet SVHC criteria.

SUSTAINABLE DEVELOPMENT GOALS



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. Solutions in the ImpACT+ category include those that, on the basis of a decision tree reflecting the three sets of criteria mentioned above, simultaneously (i) meet the basic requirements, (ii) are aligned with regulatory trends and market expectations, (iii) have a positive impact compared with the market standard on at least one of the SDGs, and (iv) do not generate a significant negative impact on the other SDGs. Solutions not included in this category can have a neutral impact or present a certain degree of risk in view of evaluation criteria. If they present a risk, an action plan is developed to improve these solutions as needed.

Following a pilot phase in 2018 to test the method and its implementation, in early 2019 Arkema initiated the gradual deployment of the program across the product ranges of the Group's various businesses. At the end of 2020, all these businesses had initiated the assessment process. Significant progress was noted, with 72% of sales to the Group's third-party

customers assessed. The method is being fine-tuned as it is rolled out and this approach will continue in 2021.

The percentage of sales generated by ImpACT+ solutions stood at 50% for 2020.

Based on the 2020 rate of coverage, Arkema introduced a new strategic target that strengthens its commitment to providing sustainable solutions.

To achieve this strategic objective, the Group implements voluntary actions to support three key drivers, which are continuous improvement of solutions, sustainable innovation for products and applications, and active promotion of ImpACT+ solutions.

2030 TARGET

To strengthen its commitment in terms of sustainable offer, the Group has set a strategic target: 65% of ImpACT+ sales in 2030

	2020	2019	2018
Percentage of ImpACT+ sales ⁽¹⁾	50%	46%	43%

(1) The percentage of sales contributing significantly to the United Nations SDGs (ImpACT+) was calculated on the basis of an assessment of 72% of the Group's third-party sales in 2020 and 44% in 2018 and 2019.

FOCUS

Vikoflex®: Safer, renewable high-performance plasticizers

The Vikoflex® range of plasticizers and additives are made from vegetable oils. Beyond being up to 100% renewable, depending on the grade, these products confer flexibility and stability to flexible and semi-rigid PVC compounds, as well as to other thermoplastic materials, rubbers and elastomers. Vikoflex® products thus constitute an alternative of choice to phthalates, the use of which can be regulated. They are particularly recommended for applications such as bags and catheters for medical use, carpet tiles backing, or electric wire and cable sheaths.

4.2.5 Product stewardship

4.2.5.1 Product stewardship policy

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 Social Commitment Charter and its Hygiene, Safety, Environment and Quality Policy and by endorsing the International Council of Chemical Associations' (ICCA) Responsible Care® initiative.

Concrete actions to reflect this commitment include:

- active contribution to advancing scientific knowledge to better take into account the hazards and risks relating to products and their use;
- product design aiming to reduce health, safety and environmental risks. Particular care is taken with products designed for consumers and professionals and with products likely to end up in recycling loops;
- risk management in existing products ranges that could lead to substitution, taking into account the entire value chain so that all aspects are considered, from raw materials to the product's end of life, including waste treatment and the circular economy; and
- communication and clear information for product users.

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 various business and Logistics teams.

4.2.5.2 Regulatory product management

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. The Group tracks the GHS updates published twice a year and aligns its Safety Data Sheets accordingly in the countries and regions that transpose them.

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 Group's businesses and corporate departments – to successfully complete the final phase of registration. In total, the Group registered 425 substances, 40% of which as the lead registrant, at the various stages of registration of the REACH regulation. Compliance with these regulations is expected to represent an overall cost of around €65 million for the registration of substances by the first three deadlines. An additional envelope of more than €40 million has been earmarked to cover the maintenance, improvement and development of the portfolio during 2019-2023.

When the registration stages 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 the health and safety of people and the environment.

The quality of REACH registration dossiers has been of great public interest since the end of the last REACH deadline.

In its 2017 REACH review, the European Commission stated that REACH was fully operational and delivered results on par with its objectives, and that it addressed citizens' concerns about chemical safety. The Commission identified four measures to improve the implementation of REACH, including one to improve the quality of registration dossiers.

In June 2019, the European Commission and the European Chemicals Agency (ECHA) issued a joint action plan with a set of measures to address that need for improvement.

In parallel, the European chemical industry, via the European Chemical Industry Council (Cefic), has defined and launched an action plan to review and improve registration dossiers. This multi-annual plan provides REACH registrants with a framework to progressively reassess safety data. In its action plan, Cefic sets the timeline, roles and responsibilities, substance prioritization criteria and critical issues, and explains how progress is to be reported. Cefic has signed a cooperation agreement with ECHA on its implementation.

Arkema joined the more than 180 companies from the chemical industry in signing up to the action plan. It fits perfectly with the Group's product stewardship strategy, which has gone beyond the ECHA's demands by proactively updating its dossiers to take into account new data and changes to ECHA guidelines.

These proactive updates accounted for around 40% of the Group's filings maintenance activity in 2020.

With the launch of the European Union's Chemicals Strategy for Sustainability, Europe is opening a new regulatory chapter for the assessment and management of chemical risks. Arkema is already preparing for the strategy, which will be translated by the authorities into regulations and implementing measures over the next four years after consultation with stakeholders, including national and European industry associations.

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 2027. Since 2012, 387 substances have been or will be evaluated under the plan. Thirty-four of the Group's substances have been listed in CoRAP and their state of advancement is as follows:

CoRAP	2012-2022	Evaluation completed	Additional information provided, awaiting conclusion	Additional data being constituted	Upcoming evaluation
Number of substances	34	17	4	8	5

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	11	10
SVHCs on the REACH candidate list	47	42

Outside Europe, the table above covers all the Group's businesses except for ArrMaz and recent acquisitions by Bostik. Products

containing these substances, whether subject to authorization or on the candidate list, accounted for 2.9% of sales in 2020.

In November 2015, Arkema filed an application with the ECHA for the authorization 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 2020, the industry candidate list contained 209 substances, including (i) hydrazine produced at the plant in Lannemezan, France, (ii) 2-imidazolidinethione (ETU) produced by MLPC, (iii) nonylphenol ethoxylates (NPE) produced by the surfactants and additives business and (iv) two photoinitiators (2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one and 2-benzyl-2-dimethylamino-4'-morpholinobutyrophenone) produced by Lambson.

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. There have also been discussions, particularly in Europe and the United States, on changes in regulations concerning per- and polyfluoroalkyl substances that could have an impact on certain Group fluoropolymer chemical activities.

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. It was finalized in September 2020 when the Committees for Risk Assessment (RAC) and for Socio-Economic Assessment (SEAC) issued their final opinions to the European Commission in anticipation of a regulatory proposal. 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.

With regard to microplastics, France's law of 10 February 2020 on the fight against waste and promotion of the circular economy introduces restrictions on the use of microplastics intentionally added to products. It will have a limited impact on the Group's activities in 2027 for some of its products used in cosmetics applications. At the same time, the European Commission will finalize a proposed restriction on the use of microplastics in certain applications in 2021, which could mean that France will have to align, when the time comes, its own legal provisions with the new European regulatory framework.

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 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 completed the pre-registration of all substances brought to market in South Korea in June 2019, in accordance with the amendment issued in March 2018, and is preparing to register the substances by the set deadline.

The Group is now preparing for the upcoming registration deadline in Turkey and has already completed the necessary pre-registrations. It also prepared for the exit by the United Kingdom from the European Union and started compliance work on the basis of the regulatory information available, with in particular substance notification by October 2021 to benefit from transition periods for registration.

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 vast majority of plant-based raw materials 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 Group's businesses 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.

4.2.5.3 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, such as Safety Data Sheets and labeling.

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 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 2021.

4.2.5.4 Animal welfare

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), to which the Group adheres. It applies the 3R approach in all the studies it conducts.



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. The Group's goal is to rank among the

leading chemical producers in terms of safety performance. It is also fully committed to taking climate action and to reducing the environmental footprint of its activities.

4.3.1 Health, safety and environmental management

Safety, health and environmental protection 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, a voluntary initiative undertaken by the chemical industry to responsibly manage its operations and products, based on a continuous improvement process.

The health, safety, environment and quality policy confirms the responsible manufacturer commitment expressed in the Group's Social Commitment Charter described in section 4.1.1 of this chapter.

The Group's health, safety and environment approach is structured around three areas: prevention of industrial risks (related to safety, the environment and pollution), integrated management system, and a culture of safety and the environment. It reflects prevailing legislation and the Group's own requirements formally defined in a Health, Safety, Environment and Quality Policy and in a global standard, the Health, Safety and Environment (HSE) manual. The policy and manual form the basis of HSE management systems in all Group entities, and also cover quality, security and energy.

The materiality assessment performed in 2019 confirmed that occupational health and safety, prevention of industrial risks, consideration of circular economy challenges including water and waste management, and greenhouse gas emissions reduction and energy management were among the Group's priority issues and have been properly integrated as such into its CSR approach.

The Arkema Integrated Management System (AIMS) for this policy is integrated globally by the Group Safety and Environment department (DSEG) and its experts in industrial hygiene, safety and the environment. The department head reports to the Industry and CSR Executive Vice-President, who is a member of Arkema's Executive Committee, and makes a monthly presentation to the Executive Committee to keep it informed of the key HSE indicators, progress made in its programs, and any significant events. In addition, the HSEQ policy and key indicators are presented each year to the Board of Directors as part of the industry overview presented by the Industry and CSR Executive Vice-President. Lastly, a review of the environmental risks is presented annually to the Board's Audit and Accounts Committee.

Implementation of the Health, Safety, Environment and Quality Policy is handled by the operating teams in each region and business.

The Group has set an ambitious target to implement and audit the Arkema Integrated Management System (AIMS) at all its sites, as described in section 4.3.1.2 of this document.

2025 TARGET

Audit 100% of Group sites* in accordance with the Arkema Integrated Management System (AIMS).

* For newly acquired companies' sites, the roll-out of this system takes place over a period of around three years.

HSE assessment of acquisitions

When looking into potential acquisition deals, a team of internal Group experts analyzes the HSE documents and information provided by the seller based on a list of questions and pre-defined criteria. On-site surveys are also conducted to supplement this analysis.

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 their own role and responsibility in ensuring occupational health and safety and protecting the environment and neighborhoods where we operate.

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 system and audits

The effective implementation of the Group's HSEQ policies – which cover health, safety, environment and quality, as well as security and energy – 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 HSEQ 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, ISO 45001 (replacing 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 HSEQ management initiatives. For the largest sites (48% of all Group sites), full AIMS audits are conducted every three years by teams comprising Arkema employees and representatives from an independent third-party auditor. Follow-up audits are then performed every year by the independent third-party auditor.

For smaller sites and depending on their specific situation, simplified or light AIMS audits, as defined in section 4.5 of this chapter, are conducted at least every five years by Arkema staff.

The 2025 target is for 100% of facilities to have undergone a full, simplified or light AIMS audit in line with the Group's audit schedule.

	2020	2019	2018
% of sites AIMS-audited	82	80	74

The steady increase in the percentage of AIMS-audited facilities since 2015 illustrates the continued deployment of this program, including at sites coming from acquisitions. Progress was less significant in 2020, as some audits were postponed due to the Covid-19 pandemic. However, the Group adapted its approach by carrying out certain audits remotely.

As part of an AIMS audit, field audits are carried out to ensure that site-led initiatives are implemented effectively and comply with requirements, notably the field initiatives described in section 4.3.1.3 of this document. These concern everyone working

on the site, including Group and subcontractor employees, and apply to every aspect of the site's operations, including production, logistics, maintenance, offices, construction or turnaround sites, and production unit shutdowns.

During AIMS audits, facilities are also audited according to 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.

Number of sites certified according to each standard	2020	2019	2018
ISO 45001 (health and safety)	87	86	85
ISO 14001 (environment)	82	81	77
ISO 50001 (energy)	34	33	30
ISO 9001 (quality)	154	156	154

The migration from OHSAS 18001 to ISO 45001 was initiated in 2018 and finalized in 2020. Some 56% of Group facilities have been certified to ISO 45001 standard in Europe, 52% in the Americas and 65% in Asia. This certification relating to health and safety represents 48% of Arkema employees.

ISO 14001 certification requires 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.

	2020	2019	2018
% of ISO 14001-certified sites	54	53	48

Depending on local conditions, certain facilities have been certified to other standards, such as the Responsible Care® Management System (RCMS) in the United States. RCMS is an integrated safety, health and environmental management system based on the principles of the Responsible Care® program.

Number of sites certified according to the standard	2020	2019	2018
RCMS (United States only: health, safety, environment)	15	14	12

In addition, the Group performs non-AIMS internal 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;
- regulatory hazardous materials transportation audits;

- supplier and logistics 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;

- security audits; and
- environmental audits in the United States and environmental reporting audits in Europe and Asia.

The results of these audits are taken into account during AIMS audits.

In addition to audits, teams from the Group Safety and Environment department (DSEG) lead 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 addition, the DSEG has provided specific support to plants during their turnarounds and stepped up its participation in events organized by the Group's various businesses, plants (annual meetings with partner companies) and corporate departments (maintenance, R&D, etc.).

Another important tool in managing the deployment of the Group's HSEQ 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 an HSEQ alert that enables other Group facilities that may encounter a similar incident to take corrective measures. The feedback process helps improve the Group's HSEQ expertise and ensure the effectiveness of the deployed measures.

To harmonize the identification, assessment and analysis of environmental risks beyond its ISO 14001-certified sites, the Group is rolling out a methodology for application worldwide. A dedicated IT system known as STARMAP was implemented in Europe, the United States and Asia in 2016, as explained in section 4.3.2.2.2. In 2020, 77% of the Group's industrial sites had installed the system, and around 72% of these sites had used it to update their environmental assessment. At end-2020, 61% of the Group's sites had carried out an environmental assessment, whether integrated into STARMAP or not.

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 HSEQ for new hires;
- the "Safety in Action" and "Essentials" programs;

- field initiatives, such as peer observations, flash audits, scheduled general inspections, safety tours, field safety audits, internal or process audits, general operating condition tours and construction site 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 2020, safety training (excluding e-learning) totaled 163,147 hours (i.e., 14 hours per year per employee trained), and the number of employees who attended at least one safety training session totaled 11,879 (58% of the Group headcount)⁽¹⁾.

In addition, 7,852 people (38% of the Group headcount) took e-learning courses on safety in 2020⁽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.

A dedicated environmental training program is offered at industrial sites 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.

Arkema organizes internal communication campaigns and other events to get employees involved in its new long-term objectives and to foster a culture of environmental awareness throughout the Group.

Details on employee training and the new-hire induction process may be found in sections 4.4.1.3.1 and 4.4.1.3.2 of this chapter. Environmental training totaled 7,571 hours in 2020⁽¹⁾, or an average of 2 hours per employee. In the context of the pandemic, 3,217 employees attended at least one environment-related course during the year (excluding e-learning). This means that 17% of the Group's employees⁽¹⁾ attended environment-related training in 2020 (excluding e-learning).

In addition, 5,593 people (30% of the Group headcount)⁽¹⁾ took environment-related e-learning courses in 2020.

(1) In entities at least 50%-owned 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, such as local residents.

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 1.0.

Reduce the process safety event rate (PSER) to less than 3.0.

Extend the peer observation program to every Group site *.



* For newly acquired companies' sites, the roll-out of this program takes place over a period of around three years.

By setting this strategic TRIR objective for 2025, Arkema is contributing to UN Sustainable Development Goals 3 "Good health and well-being" and 8 "Decent work and economic growth".

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 Group employees and subcontractors working on Group sites.

Another priority concerns the attenuation of arduous working conditions, with the deployment of a dedicated program comprising workstation ergonomics and other remedial actions. Workplace well-being and the quality of work life are also important factors in protecting employee health (for more details, see section 4.4.1.4 of this chapter).

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

Global deployment of the Lock Out-Tag Out-Try Out (LOTOTO) process

This industrial safety procedure is designed to reduce the risk of process events and occupational accidents during operation and maintenance activities. It involves locking and tagging the power sources of machines and other equipment to prevent them from being turned on accidentally during operation or maintenance.

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, 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.

In 2020, the percentage of all Group sites that had put in place peer observation practices to improve safety, remained broadly stable at 63%, versus 62% in 2019. Progress was slow as Bostik sites suspended implementation of the program in 2020 due to the pandemic. Bostik sites already have a system that is being converged with the Group's peer observation practices and will be adapted in 2021 in line with health restrictions in place. The 2025 target is to reach 100% of the Group's sites.

As an adjunct to peer observation, Arkema has put in place special programs, such as Smart Zone for rectifying shortfalls versus best practices, and SafeStart®, which involves observing oneself and others to identify the critical states that lead to more than 80% of all accidents (rushing, frustration, fatigue and complacency).



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).

The program is being rolled out gradually across the Group, furthering an understanding of behavioral approaches, and facilitating the adoption of safety tools and equipment by highlighting their utility.

Using digital technologies to improve safety

Arkema's investigation initiated in 2018 into how new technologies can contribute to health, safety and security continued in 2020, in line with its intention to make this pursuit a long-term effort. The investigation involved conducting targeted experiments to test a proof of concept, such as the use of connected tools like vehicle-pedestrian detection to prevent collisions and 3D glasses for remote diagnostics. The Group is also gradually introducing other technologies, such as virtual reality for fall risk training, tablets for safety inspections and drones for maintenance inspections.

Getting stakeholders involved in safety

In France, many sites 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 and measure their effective engagement in the area of safety:

- at the global level, through World Day for Safety. In 2020, the ideas and suggestions submitted by employees enabled the Group to round out and fine-tune its Covid-19 crisis management approach thanks to input directly from the field;
- in China, the Employee Engagement Survey, which includes a safety section, is conducted every two years, and the findings are integrated into site improvement plans. In 2019, 93% of respondents said they understood their role and responsibilities in creating a safe work environment;
- in the Americas, the Safety culture & engagement survey conducted in 2019, which also included a safety section, received 97% positive responses to the statement "I fully understand the expectations and requirements in terms of safety in my job"; and
- in Europe, the latest survey including a safety section was carried out among all employees in 2018: 97% of respondents said that "safety was on their mind".

For local residents, the Common Ground® initiative allows for open dialogue with local communities, notably addressing industrial risks stemming from the site's activity. This program is discussed in greater detail in section 4.4.6 "Corporate citizenship and philanthropy" of this chapter.

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 active involvement of all employees.

2025 TARGET

In light of the performance achieved in 2020, the Group has set a more ambitious target of achieving a total recordable injury rate per million hours worked (TRIR) of less than 1.0.



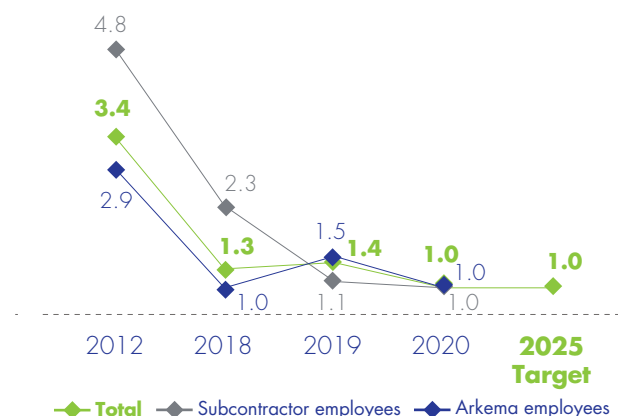
The Group's safety performance saw a very sharp improvement in 2020, with a TRIR of 1.0, following on from the strong results in 2019 and a TRIR of 1.4. This performance stems from excellent results for Group employees, with TRIR down to 1.0 in 2020 from 1.5 in 2019, and for subcontractor employees, with TRIR down to 1.0 in 2020 from 1.1 in 2019. These improvements are the outcome of action plans that have been implemented over the past several years through behavior-based programs.

To confirm this performance and consolidate its level of safety excellence, the Group decided to set a new target for 2025 with a TRIR of less than 1.0.

The Group also made progress in its drive to reduce the number of lost-time injuries, thanks to the implementation of prevention initiatives. As a result, the lost-time incident rate (LTIR) declined to 0.7 in 2020 from 0.8 ⁽¹⁾ in 2019. An average of 50 days were lost per injury in 2020 across all Group and subcontractor employees. No fatal accidents have been recorded since 2013.

The following charts show consolidated injury rates for the 2018 to 2020 period, in number of injuries per million hours worked, calculated according to the methodology described in section 4.5.2 of this chapter. They also show data for 2012, the baseline year used to set the strategic safety target in the Group's CSR policy.

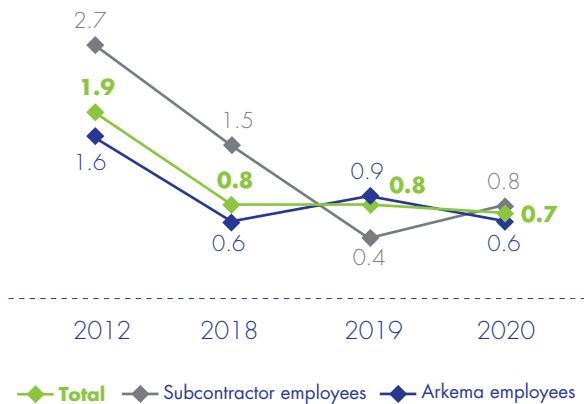
I Total recordable injury rate (TRIR) ⁽²⁾



(1) The 2019 LTIR, announced in the 2019 URD as 0.7, was updated to include an injury that had not initially been taken into account.

(2) A "total recordable injury" refers to any injury causing bodily harm or psychological trauma to an employee in the course of his or her duties, whether or not it results in a day or longer off work.

I Lost-time injury rate (LTIR) ^{(1) (2)}



In 2020, a total of 34 Group employees were victims of reported injuries recorded in the TRIR for the year, of which 11 resulted in lost time, out of a total worldwide workforce of 20,576 people. The rate also reflected the 9 incidents involving subcontractor employees reported during the year, of which 7 were lost-time injuries. The rate of potentially serious incidents fell in 2020 to 0.30, versus 0.31 in 2019, as did their number, from 15 in 2019 to 13 in 2020. The Group remains set on further reducing this number in the coming years by means of a program addressing the identification and analysis of potentially serious accidents, allowing it to focus primarily on these types of accidents so as to increase the efficiency of prevention.

4.3.2.2.2 Health at work

Arkema has also undertaken continuous improvement initiatives to prevent health risks and enhance employee wellbeing.

Protecting health at the workplace

To consolidate all of the workplace health and safety initiatives, the Group is developing a workplace risk assessment application, named 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, supporting the gradual harmonization of existing methodologies. At 31 December 2020, 53% of the Group's sites had carried out a workplace risk assessment in accordance with the general basic principles defined by Arkema, and 24% had entered the assessment data into the STARMAP tool based on Arkema's methodology.

Additional measures have been implemented to protect employee health during the Covid-19 crisis. For further details, see section 4.3.2.4 on crisis management of this chapter.

Integrating ergonomics and preventing arduous working conditions

Over the past decade, the Group has undertaken a process to integrate ergonomics and prevent arduous working conditions.

In France, an 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 improving 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. A new agreement to further integrate ergonomics into work processes was signed in late 2020 with labor representatives covering the period from 2020 to 2023.

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 sites have launched a program to improve workstation ergonomics, primarily in packaging operations.

In China, targeted studies are being conducted to improve 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.

Preventing stress and improving quality of work life

Arkema France has been conducting a physician-supported stress prevention program for individual employees for over ten years. Stress levels are determined by taking a standardized stress, anxiety and depression test (OMSAD) during employees' 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 96.4% of Group companies in 2020, covering 95.2% of employees.

The occupational health services also participated in Covid-19 prevention initiatives during the year, in compliance with national or local regulations.

(1) A "lost-time injury" refers to any injury causing bodily harm or psychological trauma to an employee in the course of his or her duties, and resulting in time off work.

(2) The 2019 LTIR, announced in the 2019 URD as 0.7, was updated to include an injury that had not initially been taken into account.

4.3.2.2.4 Occupational illnesses

Toxic or hazardous substances have been and continue to be used in the manufacture of Arkema'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, Arkema 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 addition, each HSEQ review relating to a new industrial project lists the products involved, identifies those that may present a health risk and implements the measures necessary to prevent or limit employee exposure (finding an alternative, limiting quantities, setting up protection systems, etc.).

In 2020, 36 occupational illnesses were reported, of which 18 were related to exposure to asbestos and 10 to exposure to chemicals. These figures, which include diseases not listed to date in the tables of occupational illnesses, remained practically unchanged compared with 2019, implying a steady occupational illness frequency rate (OIFR), as shown below.

The OIFR refers to the number of occupational illnesses reported per million hours worked.

Occupational illness frequency rate (OIFR)	2020	2019	2018
Number of occupational illnesses reported per million hours worked	1.0	1.0	1.9

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. At the global level, the Group is working on digitizing its risk assessment data using the dedicated STARMAP tool described in section 4.3.2.2.2, 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 6.3 to the 2020 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 errors, (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 2020, Group capital expenditure allocated to safety, the environment and maintaining the production facilities to standard amounted to €270 million, versus €279 million in 2019.

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 2020, 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 update 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.

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 introduced a process safety indicator, the PSER (number of process safety events per million hours worked) based on ICCA and CEFIC criteria.

2025 TARGET

Driving further efforts on reducing industrial accident risks, the Group has set the strategic target of a PSER under 3.0.



The number of process events, based on the international criteria defined by the ICCA, remained stable in 2020 compared with 2019, with a PSER of 4.0 for 2020 versus 3.7 for 2019. Analysis of process events by type and research into root causes have enabled the implementation of concrete, targeted actions to reduce the short- and medium-term PSER. For example, technical measures involve reinforcing production line inspections (mechanical integrity program) and continuing the rollout of a risk based inspection approach. Actions to protect people consist in the global deployment of the LOTOTO safety procedure described in section 4.3.2.2.1, which includes the formal monitoring of process circuit positions covered in the Walk the Line program.

Major process safety events (major PSEs) are reported as soon as possible to Executive Committee members and to the neighboring 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 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.

A new global indicator was introduced in 2020: the ratio between the number of events and the number of shipments for the scope in question. The aim is to identify and analyze the transportation modes, regions and businesses with the highest event rates, so that a corrective action plan can be implemented. In 2020, the overall rate was about 0.1%.

Major events are communicated to the Executive Committee on a quarterly basis.

Progress on the action plans for major events is checked after four months and until completion. The analysis of these events has made it possible to target points for improvement, such as impermeability checks on tanks and loading plans for outgoing vehicles.

The Group's global directive on warehouse facilities was revised in 2020. Warehouses are classified in accordance with the level of hazard and the quantities of Arkema products stored. This classification system affects assessment methods and acceptance criteria.

4.3.2.4 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, security, cybersecurity and the environment on Group sites and during transportation. Crisis situations may be caused by internal or external events, including natural occurrences such as flooding.

A year-round on-call system enables the Group to manage crises by setting up a dedicated crisis management team. The Group regularly offers courses in "Crisis management and communication" and "Media training", and conducts simulations of crises and set-up of crisis management teams, especially at the highest risk Seveso sites in Europe. Some of these exercises may involve Group staff, as well as external stakeholders such as government employees, elected officials, the fire department and local residents.

The crisis management process also applies to events caused by Group products located at customer sites. An emergency number is indicated on shipping documents and Safety Data Sheets for Arkema. It is available via the country subsidiary for Bostik. Within this product line, a product recall exercise is organized every year for the "food contact" segment with products designed for the general public.

2020 was shaped, in particular, by the Covid-19 health crisis. Against a backdrop of total and partial lockdowns in various regions, Arkema demonstrated its capacity to manage and control the health impacts of the crisis while maintaining its industrial operations at the required level. A specific organizational structure was set up worldwide and adapted by region and country in order to manage the crisis in compliance with local regulations. Protective measures have been implemented and updated at each stage of the crisis, to help protect employee health and prevent the spread of the virus at Group sites.

4.3.2.6 Cybersecurity

In the area of cybersecurity, the Group has adopted a policy of increasing the protection of its corporate and industrial information systems worldwide, as described in section 2.1.3 of this document.

To implement the policy, Arkema has appointed a Group Chief Cybersecurity Officer, who reports to the Group's Chief Information Officer. The latter's department comes directly under the responsibility of the Chief Financial Officer, who is a member of the Executive Committee.

4.3.2.5 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 prevent and reduce the impact of possible malicious acts, Arkema has decided to strengthen its security policy in several key areas:

- **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

A "security" platform for traveling employees

A "security" platform has been set up to enhance the security of employees on business trips. In addition to enabling employees to record their travel plans, the platform provides essential travel-related information and resources, such as e-learning modules on general risks like information theft and specific risks associated with certain countries, country datasheets containing essential information like health guidelines, as well as a hotline and a security alert system open 24/7.

To roll out this safety policy to all employees, the Group-wide "i-Safe" awareness program, launched in 2018, is based on best cybersecurity practices. Ten of these, known as "the Golden rules", are deployed gradually via team meetings that extend to all employees. The first topics covered in these meetings were prudent use of USB flash drives and email, data protection, vigilance in the face of potential attacks, safe business travel, and vigilance on social media.

4.3.3 Environmental and climate information

REDUCING THE ENVIRONMENTAL FOOTPRINT OF THE GROUP'S OPERATIONS

4.3.3.1 Environmental management

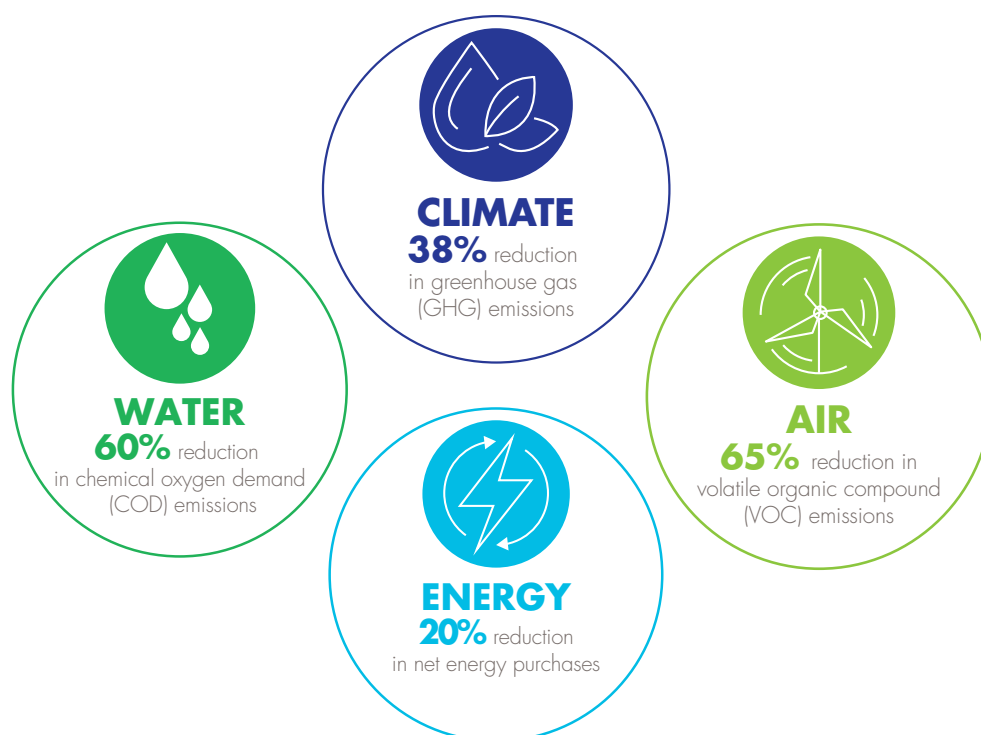
Reducing its environmental footprint and combating climate change are part of Arkema's commitment to being a responsible manufacturer. To achieve these objectives, the Group continues to upgrade its manufacturing practices to reduce emissions, optimize its use of energy, water and non-renewable raw materials, 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 Group has defined four objectives for 2030 that aim to reduce energy consumption and emissions into air (greenhouse gases and volatile organic compounds) and emissions to water (chemical oxygen demand). The materiality assessment conducted in 2019 and set out in section 4.1.7 of this chapter confirmed the importance that stakeholders attribute to environmental topics.

4 ambitious environmental targets for 2030 *



* In absolute terms compared with 2015 for climate, in Environmental Footprint Performance Indicator (EFPI) terms compared with 2012 for water, air and energy.

Climate (greenhouse gas emissions*)



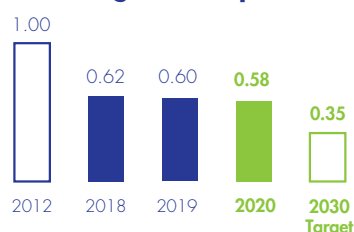
Energy (net energy purchases EFPI)



Water (chemical oxygen demand EFPI)



Air (volatile organic compounds EFPI)



* Scope 1 and Scope 2 emissions as defined in the Kyoto Protocol + ODS listed in the Montreal Protocol

NB: the change in the Environmental Footprint Performance Indicators (EFPIs) is expressed in relation to an index base of 1 in 2012.

These four strategic indicators and their trends are covered in more detail below.

Beyond the evolution of these four strategic 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 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. In 2020, Arkema notably continued preparing the SEQUE IV study, which will be implemented over the 2021-2030 period. 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 provisions using specific IT applications dedicated to each country's regulations.

In 2020, the Group was served three notices for environmental violations with fines totaling over USD 10,000. Two of these were in the United States and one in China.

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 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 for the past 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 177 initiatives were undertaken in 2020. They covered the full range of environment-related topics, including water withdrawals, the reduction in water effluent releases, GHG and VOC emissions, soil contamination and waste production; and
- each quarter, 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 long-term 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

Arkema has been committed to the fight against global warming for many years. The Group believes that businesses have a key role to play in the climate emergency and a duty, in everyone's interests, to act quickly. After achieving its previous objective early, Arkema reached a new milestone in 2019 by adopting an ambitious climate plan aligned with the Paris Agreement. Under the plan, the Group has set a new strategic environmental objective for reducing the greenhouse gas emissions associated with its activities, as described in section 4.3.3.2.1 below. In 2020, Arkema enhanced its climate plan with objectives relating to its value chain, which are presented in section 4.3.3.2.3.

To reduce the environmental footprint of its activities, the Group continuously innovates and improves its production processes, implements an ambitious energy efficiency optimization strategy, notably through its Arkenergy program, and pursues its efforts to purchase energy from increasingly low-carbon sources. In addition, the carbon issue is systematically taken into account in industrial investment decisions, energy supply contracts and the evaluation of acquisition projects. All Arkema businesses are required to contribute to the reduction.

At the Rencontre des Entrepreneurs de France (LaREF) meeting for French entrepreneurs held in August 2020, Arkema reaffirmed its 2015, 2017 and 2019 commitments to a low-carbon industry and economy by signing the French Business Climate Pledge 2020.

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 offer 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 "Natural resources management".

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.

Climate governance is supported at the highest level of the organization and fully integrated into the CSR governance system described in section 4.1.2 of this document. A steering committee dedicated to the climate plan meets at least three times per year to track progress on the Group's global action plan and to monitor the contribution made by each business to reducing greenhouse gas emissions. The committee is chaired by the Industry and CSR Executive Vice-President and comprises the Vice-Presidents of Sustainable Development, Safety and the Environment, representatives from the functional units actively involved in the climate plan, such as R&D, processes and energy, and the heads of the Group businesses that contribute the most to Arkema's carbon footprint.

The Group publishes its greenhouse gas emissions in accordance with the GHG Protocol, which is based on the Kyoto Protocol:

- Scope 1 emissions are direct emissions;
- Scope 2 emissions are indirect emissions relating to energy purchases; and
- Scope 3 emissions are indirect emissions relating to the value chain, both upstream and downstream of the Group's activities.

In addition to complying with the GHG Protocol, the Group also reports its direct greenhouse gas emissions from ozone depleting substances in line with the Montreal Protocol.

The Group's climate target is a new long-term Science-Based Target (SBT) and is consistent with the goal of keeping the rise in global temperatures to well below 2°C above pre-industrial levels by the end of the century, in accordance with the Paris Agreement and recent reports from the Intergovernmental Panel on Climate Change (IPCC).

2030 TARGET

Reduce greenhouse gas emissions* by 38% compared with 2015.



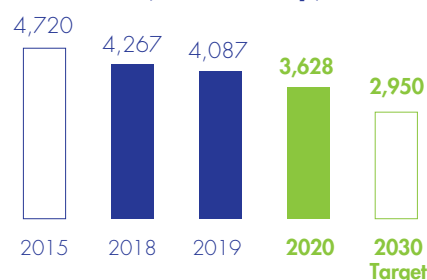
* Absolute target for Scope 1 and Scope 2 emissions as defined in the Kyoto Protocol + substances listed in the Montreal Protocol.

The methodology used to define this SBT is described in section 4.5 of this chapter. It covers Scope 1 and Scope 2 GHG emissions as defined in the Kyoto Protocol. As a responsible manufacturer, Arkema also includes GHG emissions of substances targeted by the Montreal Protocol to fully contribute to the climate change challenge.

Absolute indicator for greenhouse gas emissions SBT

The chart below details greenhouse gas emissions ⁽¹⁾ (in kt CO₂eq.) from the Group's operations in 2020, 2019 and 2018, calculated according to the methodology described in section 4.5 of this chapter.

I GHG emissions ⁽²⁾ (in kt CO₂ eq.)



In 2020, the Group's GHG emissions fell 11% compared with 2019. Two-thirds of this reduction is thanks to the voluntary actions taken by the Group as part of its climate plan. Other decreases were the result of lower production volumes and the divestment of

(1) Scope 1 and Scope 2 emissions as defined in the Kyoto Protocol + substances listed in the Montreal Protocol.

(2) Since 2019, GHG emissions have included those of American Acryl's Bayport facility. Emissions from previous years have been recalculated to take account of this consolidation (see section 4.5.2.1 of this chapter).

the Functional Polyolefins business. For each Scope, emissions are set out below.

4.3.3.2.1 Scopes 1 and 2 greenhouse gas emissions

Scope 1 direct emissions

The Group's direct greenhouse gas emissions (Scope 1) 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 (CO₂), nitrous oxide (N₂O) or methane (CH₄) as a product, by-product, co-product or waste, and gas discharges from processes such as thermal oxidation, which converts VOCs into CO₂.

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 section 4.3.3.2.2 on energy below).

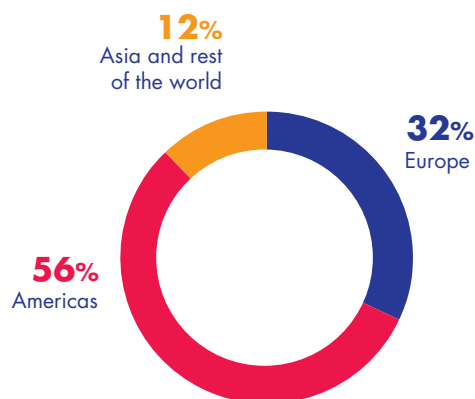
Absolute indicator for direct greenhouse gas emissions

The table below details direct greenhouse gas emissions (in kt CO₂eq.) from the Group's operations in 2020, 2019 and 2018, calculated according to the methodology described in section 4.5 of this chapter.

Scope 1 GHG emissions (kt CO ₂ eq.)	2020	2019	2018 ⁽¹⁾
Total	2,268	2,698	2,807
Of which CO ₂	1,495	1,490	1,567
Of which HFC	742	1,174	1,210
Others	31	34	30

In 2020, the very significant decrease in emissions is attributable chiefly to the continued improvement of the treatment of vents on the Calvert City site (United States).

Direct GHG emissions by region (in kt CO₂ eq. per year)



In 2020, direct emissions fell in each region and more significantly in Asia and the Americas. These declines primarily result from the outsourcing of steam supply in Casda (China) and improvements made in Calvert City (United States).

Other direct emissions

The Group emits GHGs involved in producing HCFCs, substances that deplete the ozone layer (Montreal Protocol).

Montreal Protocol	2020	2019	2018
Greenhouse gas emissions (kt CO ₂ eq.)	257	247	277

Scope 2 indirect emissions

The Group analyzes the following indirect GHG emissions:

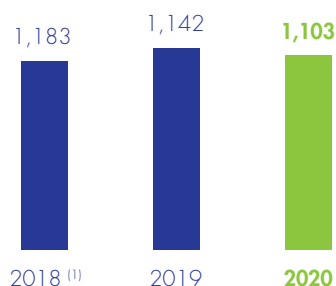
- Scope 2 CO₂ emissions from the suppliers of the electricity and steam purchased by the Group; and
- Scope 3 CO₂ emissions, categories 1, 2, 3, 4, 5, 6, 7, 8, 9, 12 and 15. See section 4.3.3.2.3 below.

To reduce its indirect Scope 2 emissions, the Group takes steps to scale back its energy consumption and source low-carbon or renewable electricity, as described in section 4.3.3.2.2 on energy.

The chart below presents the Scope 2 emissions from the Group's operations in 2020, 2019 and 2018, as defined above and calculated according to the methodology described in section 4.5 of this chapter.

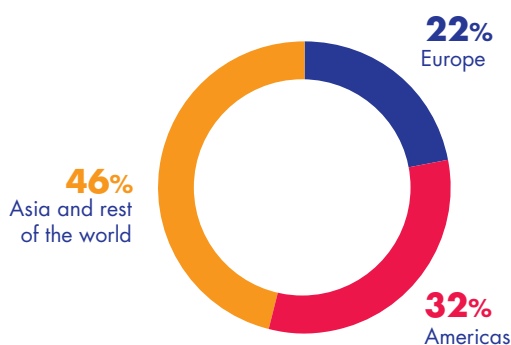
Scope 2 CO₂ emissions break down as follows:

Indirect GHG emissions (in kt CO₂ eq.)⁽¹⁾



Scope 2 CO₂ emissions showed a net decrease of over 3% in 2020 compared with 2019, under the combined impact of the overall decline in production volumes and the increase in steam purchases in Asia. These higher purchases come from the ramp-up in production volumes at Kerteh (Malaysia) and the outsourcing of steam supply in Casda (China), which also led to a reduction in Scope 1 emissions that outmatched the additional Scope 2 emissions.

Indirect GHG emissions by region (in kt CO₂ eq. per year)



Internal carbon price

To enhance its long-term approach, the Group set an internal price for Scope 1 and Scope 2 GHG emissions, expressed in terms of CO₂ 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. The internal carbon price is applied to compare scenarios using different processes to determine their impact on product cost. Using the internal carbon price also serves to enhance employee awareness, drive behavioral changes, promote energy efficiency, and encourage teams to identify and seize low-carbon opportunities.

The Executive Committee reviews the use of the internal carbon price, checks its relevance and, if necessary, adjusts the value. The price is currently set at €50 per tonne of CO₂.

4.3.3.2.2 Energy

The Group deploys a wide range of actions to reduce Scopes 1 and 2 CO₂ 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 use

The Group uses a variety of energy sources, primarily in its industrial operations. To optimize energy consumption, the Group set the following target:

2030 TARGET

Reduce net energy purchases by 20% in EFPI terms compared with 2012.



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. To date, a total of 34 sites are ISO 50001-certified, which corresponds to approximately 60% of Arkema’s total energy use;
- allocating a dedicated capital expenditure budget specifically for Arkenergy initiatives. In 2020, 66 capital projects were funded out of the budget, including 42 in Europe, 6 in the Americas and 18 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. For example, advanced control systems involve installing “controllers” or IT systems that enable 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 projects initiated in 2019 have been fully deployed in Changshu (China) and Jarrie (France) and partially deployed in Houston (USA), which was harder hit by the Covid-19 pandemic. The initiative will be continued in 2021.

(1) Since 2019, GHG emissions have included those of American Acryl’s Bayport facility. For 2018, emissions have been recalculated to take account of this consolidation (see section 4.5.2.1 of this chapter).

As the reliability of steam traps can have a significant impact on energy losses, Arkema introduced a management system for all its steam traps in Europe in 2020. The new digital tool enables the Group to visualize the condition of its steam traps, as well as the progress made on repairs and compliance work, in real time. The aim is to reduce the steam trap failure rate by 75% over three years through changes to their installation and regular inspections. This European initiative is now being rolled out in the Americas and Asia.

FOCUS

Saving energy through Advanced Process Control

The deployment of an Advanced Process Control project resulted in a 17% reduction in a production unit's steam consumption.

This reduction was achieved thanks to the continuous optimization of the unit's settings by the information system (every two minutes), under the general supervision of the unit's operators.

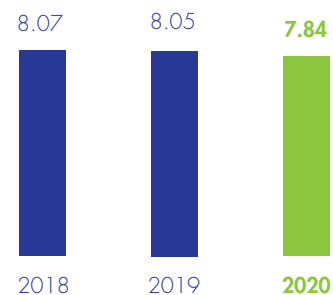
The use of this new technology is accompanied by a major cultural shift for production employees.

Arkenergy program initiatives that have helped to significantly reduce CO₂ emissions include: changing the technology used in an incinerator to improve its performance, upgrade work on boilers, steam recompression, and initiatives to insulate the steam networks at several facilities.

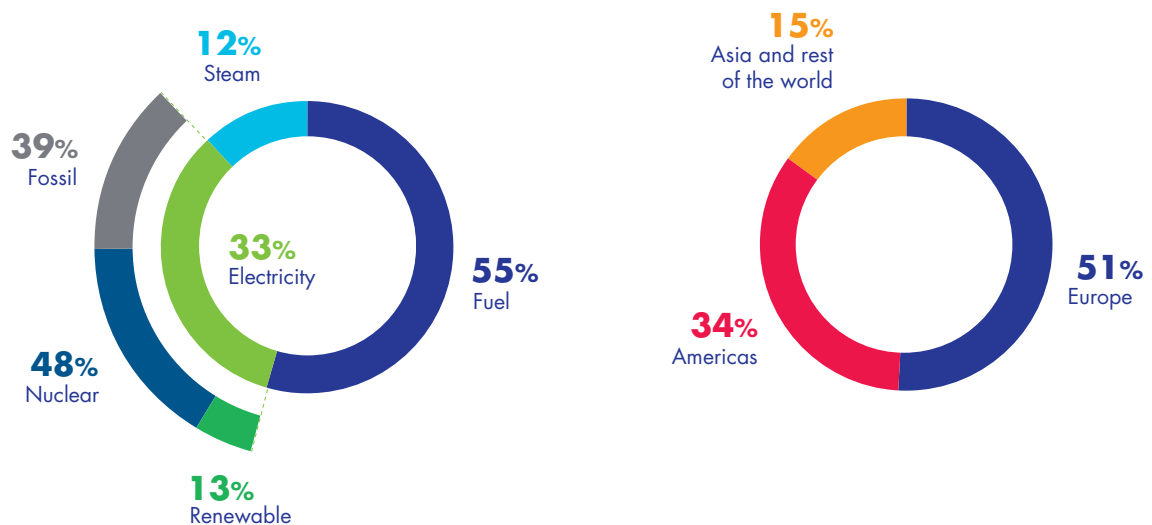
Absolute indicator for energy purchases

The chart hereafter presents consolidated net energy purchases in 2020, 2019 and 2018, calculated in terawatt-hours according to the methodology described in section 4.5 of this document.

I Net energy purchases (in TWh)



The net energy purchases by type of energy and geographical region break down as follows:



In 2020:

98% of the TWh generated by fuel were natural gas-fired, unchanged from 2019;

22% of the net TWh purchased by the Group, regardless of source, were from low-carbon electricity, as was the case in 2019.

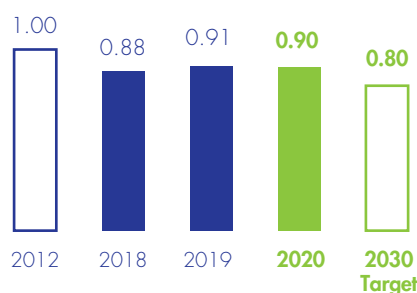
As part of its mobilization in favor of the climate and its strategic objective of reducing GHGs, Arkema is working to shift its energy mix in favor of low-carbon energy sources.

Intensive indicator for net energy purchases

The chart below presents the net energy purchases EFPI for the Group's operations in 2020, 2019 and 2018, 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.

Net energy purchases EFPI



This indicator improved slightly in 2020, reflecting a strong performance in light of the unfavorable context, with a decline in production volumes caused by Covid-19. Certain facilities were forced to operate at speeds below their nominal rates, resulting in a reduction in energy performance. As early as April 2020, studies were carried out to limit the impact of lower operating rates by finding a compromise between meeting customer needs and minimizing energy losses.

4.3.3.2.3 Scope 3 greenhouse gas emissions

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, drawing on the GHG Protocol, Scope 3 emissions arise from 15 categories of activities across the corporate value chain. Arkema has identified nine material categories, four non-material categories and two categories that are not relevant. The emissions calculated for the Group in 2020 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. In 2020, the Group continued its efforts to increase the reliability of the data collection process, particularly for Category 1.

Category number	Category name	Emissions (kt CO ₂ eq.)	Comments
1	Purchased goods and services	6,592	Significant. As is often the case in the chemicals industry, this category is material for Arkema. The reporting scope was enlarged for this category in 2020 to include purchases of raw materials by Arkema subsidiaries and packaging purchases for the Group.
2	Capital goods	329	Significant
3	Fuel- and energy-related activities not included in Scope 1 or 2	679	Significant
4	Upstream transportation and distribution	288	Significant
5	Waste generated	430	Significant
6	Business travel	8	Non-significant
7	Employee commuting	24	Non-significant
8	Upstream leased assets	7	Non-significant
9	Downstream transportation and distribution	291	Significant. In 2020, GHG emissions for this category were down 21% compared with 2019. This decrease mainly results from lower volumes on certain markets and reduced air shipments in favor of other shipping methods that produce lower emissions.
10	Processing of sold products	Data not available	Significant. 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 sold products	Data not available	Significant. As is often the case in the chemicals industry, this category is the most material for Arkema. The Group has identified Fluorogases as the most emission-intensive products. However, current knowledge of product use data and the absence of a recognized methodology make it impossible to estimate this category reliably. However, 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). Year after year, these transitions result in an extremely significant reduction in the average global warming potential of the Fluorogases sold by the Group.
12	End-of-life treatment of products sold	2,546	Significant. The estimate for this category has increased slightly following the extension of the scope and the inclusion of packaging. It does not take into account the Fluorogases Business Lines.
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	-	Not relevant. The acquisitions carried out in 2020 do not meet the criteria for this category.
TOTAL		11,194	

In 2020, indirect Scope 3 GHG emissions, which were estimated for 11 categories, represented 11,194 kt CO₂ eq. They decreased significantly compared with 2019, despite the larger scope taken into account in categories 1 and 12.

In 2019, Arkema set Science-Based Targets (SBTs) aligned with a trajectory well below 2°C for its Scope 1 and 2 emissions and ozone-depleting substances. In 2020, it introduced SBTs for certain categories of Scope 3 emissions, thereby setting targets for its value chain in line with the Paris Agreement:

- a 19% reduction in Scope 3 emissions categories 3, 4, 5 and 9 between 2015 and 2030; and
- commitment from suppliers representing 82% of Scope 3, category 1 emissions to set SBTs for their Scopes 1 and 2 emissions by 2025.

4.3.3.3 Resource management and the circular economy

To respond to the scarcity of natural resources and the increasing environmental impact of human activities, Arkema develops the circular economy by conserving resources and reducing the environmental impact of activities throughout the life cycle. The Group has made this issue a priority area based on its materiality assessment conducted in 2019, which is described in section 4.1.7 of this document. This growing challenge of the circular economy applies to both the Group's solutions described in section 4.2 and its industrial operations.

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.

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 in section 4.3.3.2.2 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 vapor 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 in 2019, identified using the World Resources Institute's Aqueduct tool, represented less than 2% of the Group's consolidated water use and accounted for less than 2% of total production in terms of tonnage.

Drawing on these observations, the Optim'O project gives rise to numerous initiatives, particularly at the sites that account for most of the Group's water use and/or generate the most wastewater.

In 2020, Arkema stepped up its identification of the Group's water-stress-related risks by adopting a more detailed, forward-looking methodology and by using WRI's Aqueduct and WWF's Water Risk Filter. The next phase will involve analyzing the impact of water stress on the Group's activities. This phase will begin in 2021 with a pilot study on a Business Line with operations worldwide.

FOCUS

Reducing water use

The Serquigny site (France) reduced its water withdrawals from the Risle river by 40% between 2018 and 2020. The sharp improvement was notably due to the introduction of less water-intensive technologies during an investment project carried out to enhance production. The site will have halved its water use by 2025, while continuing to increase its production capacities.

The table below presents consolidated water withdrawals in 2020, 2019 and 2018, calculated according to the methodology described in section 4.5 of this chapter.

Water use	2020	2019 *	2018
Total water withdrawn (in millions of cu.m)	114	116	119

* Following a correction of the 2019 metering methodology at the Pierre-Bénite site, the 2019 value communicated in the 2019 Universal Registration Document was reassessed by 2.8 million cu.m (corresponding to 0.32 cu.m/€k), consistent with the metering methodology of the other years.

At constant metering methodology, water withdrawals fell in 2020 by around 2 million cu.m.

In order to strengthen its action to protect water resources, the Group has set in 2020 a new objective concerning water withdrawals as a percentage of Group sales, with a reduction target of 10% compared with the reference year of 2019, *i.e.* - before taking into account the correction to the 2019 metering method at the Pierre-Bénite site (see asterisk above) - a target of 11.6 cu.m/€k in 2022.

4.3.3.3.3 Raw materials 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 promotes the purchase of recycled packaging and encourages its suppliers to develop this practice. It also offers customers other recycling solutions and deploys circular economy initiatives that are described in paragraph 4.2.3 of this chapter.

Lastly, the Group also uses circular, renewable and recycled raw materials in its production processes, as described in section 4.2.3 of this document.

4.3.3.3.4 Circular economy and industrial operations

The Group strives to limit waste and recovers by-products generated by its industrial processes. The Group's industrial-scope circular economy program was strengthened in 2020 and involves:

- reducing consumption of raw materials;
- reducing the use of packaging (upstream and downstream);
- reducing waste production;
- carefully sorting and preparing waste to ensure the best possible treatment process;
- securing the sale of co-products and by-products and preventing their reclassification as waste;
- improving internal and external waste treatment processes; and
- processing third-party waste in cases where it is possible to improve disposal methods.

As part of this program, an awareness campaign has been launched for all industrial sites and a review of all waste flows has been initiated in order to improve circularity.

FOCUS

Recycling products after use

Some of the molecular sieves sold for medical applications are returned by certain customers to the facility in Honfleur (France) after use. These products are then recalibrated, treated and sold for use in gas purification or less sensitive medical applications.

Recycling packaging materials

For many years, the Group has been using recycling and recovery channels provided by packaging suppliers and encourages its customers to also use these systems.

Recycled packaging is used whenever possible, depending on the compatibility between containers and contents. Out of their total packaging consumption, some industrial sites use up to 70% recycled packaging.

The Group also stresses the importance of using new packaging designed with an optimized percentage of recycled materials, as cardboard and plastic container recycling operators now offer a wide selection.

The marketing teams from the Group's various businesses work to integrate into their product lines packaging made from the Post Consumer Recycled (PCR) stream, as the offer of these materials continues to grow. The Group's technical approach to packaging places priority on single-material packaging and high recyclability options. For example, the small bags used for Bostik's tile adhesives and mortars have always been made out of kraft paper, a material with a recycling rate of 80% to 85%. A firm advocate of using recycled packaging, Arkema urges its suppliers to design and develop standards that will contribute to rapidly expanding recycled packaging solutions throughout the chemical industry.

In 2020, manufacturers of plastic cartridges (an essential packaging component for the sealants and adhesives produced by the Group) entered into a technical testing phase designed to ensure that a significant portion of recycled plastic is integrated into their production processes in the near future.

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 amino acid at the Marseille (France) plant are examples of re-use through the Oleris® range, whose bio-based origin is in increasing demand in recycling channels.

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 36,000 tonnes a year of solid sodium sulfate.

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. The Group formed a transdisciplinary working group – representing Business Lines, procurement, processes, HSEQ, R&D and sustainable development – to step up these efforts and increase coordination with partners.

In 2020, 11% of hazardous waste produced worldwide was recycled on- or off-site to recover useful materials.

For several years, the Mont facility in France has 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 Lacq site (France), desulfogypsum from the sulfur residue treatment facility is a non-hazardous waste that is re-used as a material for the manufacture of plasterboard. In 2020, 14,500 tonnes of desulfogypsum were recycled in this way, thereby avoiding their being sent to landfill.

At the Jarrie site (France), used secondary filters from the hydrogen peroxide production unit were previously sent straight to disposal systems. Thanks to a new waste recovery system, the palladium present in these filters is now recycled and reused in the production of one of the catalysts used by the site. This precious metal is on the European Union's list of critical raw materials.

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.

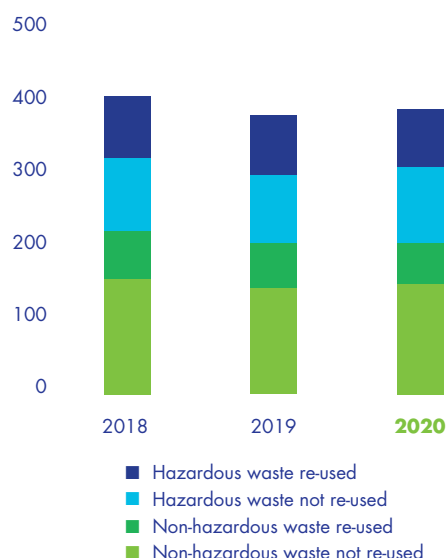
In recent years, the Group has in particular:

- 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 2020, 2019 and 2018, calculated according to the methodology described in section 4.5 of this chapter.

Hazardous and Non-hazardous waste (in kt per year)



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 2020, 2019 and 2018, calculated according to the methodology described in section 4.5 of this chapter.

Hazardous waste (in kt per year)	2020	2019	2018
Waste recycled into materials	20	26	28
Waste burned as fuel	60	57*	58*
Non-recycled hazardous waste	105	95*	101*
• Of which landfilled	2.5	3.8	4.0
TOTAL HAZARDOUS WASTE	185	178	187

* The breakdown between recycled and non-recycled hazardous waste in 2019 and 2018 was corrected following a historical classification error.

In 2020, hazardous waste increased slightly, while non-hazardous waste remained stable. This stems from both the overall decline in production volumes and the significant increase in production on product lines that generate higher waste.

In 2020, 11% of hazardous waste produced by the Group worldwide was recycled at the production site or off-site to recover useful materials and 32% was burned as fuel.

In 2020, 9,300 tonnes of sludge from a wastewater treatment plant was re-used in cement plants by industrial sites in France.

Non-hazardous waste (in kt per year)	2020	2019	2018
Recycled non-hazardous waste	57	62*	66*
Non-recycled non-hazardous waste	152	146	159
• Of which landfilled	26	26	37
TOTAL NON-HAZARDOUS WASTE	209	208*	225*

* The 2019 and 2018 figures for recycled non-hazardous waste have been corrected, after a co-product was erroneously included in their calculation.

4.3.3.4 Protecting 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 SO₂ 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;
- a reduction in NO_x emissions; and
- continued 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, 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-NO_x burner technologies.

In 2020, ongoing work to update the solvent management plan for the Genay site (France) resulted in a better assessment of VOC emissions, explaining the drop of over 90% in its emissions.

ABSOLUTE INDICATORS FOR AIR EMISSIONS

The indicators in the table below present air emissions from the Group's operations in 2020, 2019 and 2018, calculated according to the methodology described in section 4.5 of this chapter.

Air emissions	2020	2019	2018
Acidifying substances (t SO ₂ eq.)	2,220	2,620	3,040
• SO _x (t)	1,260	1,590	1,960
• NO _x (t)	1,110	1,200	1,230
Carbon monoxide (CO) (t)	906	950	940
Volatile organic compounds (VOCs) (t)	3,426	3,810	4,150
Dust (t)	217	203	235

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. In 2020, the drop in SO₂ emissions mainly resulted from the continued improvement in the operation of the Lacq treatment unit (France).

For volatile organic compounds, the decline resulted from an improvement in the treatment of vents on the Calvert City site (United States) and the Mont and Marseille sites (France), an update of the solvent management plan for Genay (France), and the removal of the Balan site (France) from the reporting scope, following its divestment in 2020.

FOCUS

VOC reduction at the Marseille site (France)

The start-up of a new treatment unit in 2020 enhanced the Marseille site's existing measures and enabled a 17% reduction in its VOC emissions.

INTENSIVE INDICATOR FOR AIR EMISSIONS

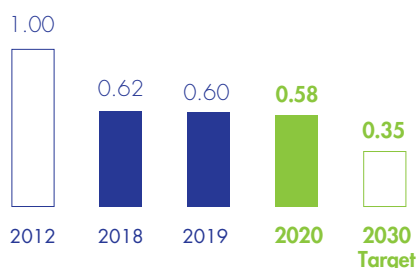
The chart below presents the VOC emissions EFPI from the Group's operations in 2020, 2019 and 2018, calculated according to the methodology described in section 4.5 of this chapter. Emissions are calculated using the Group's biggest VOC emitters, which account for more than 80% of the consolidated total.

2030 TARGET

Reduce VOC emissions, expressed in EFPI terms, 65% compared with 2012.



Volatile organic compound (VOC) EFPI



As with emissions in absolute terms, the improvement in this indicator reflects progress in treatments on certain sites, in particular in the United States and France. Action plans will continue to be rolled out to achieve the 2030 objective.

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 helping to:

- optimize water use, the efficiency of the water treatment process, the initial design of installations and their daily operation, through the use of advanced technologies and the development of innovative solutions;
- ensure compliance with applicable legislation and regulatory developments, such as the Best Available Techniques reference document on Common Waste Water (CWW BREF) issued by the European Union; 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 updated annually since 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. Due to the Covid-19 context, only three sites could be audited in 2020, and the program will be continued at a further 20 sites in 2021 in line with health restrictions.

The Optim'O program benefits from a special budget that can be used to speed up the implementation of the action plan.

ABSOLUTE INDICATORS FOR EFFLUENT RELEASES

The environmental indicators in the table below present effluent released from the Group's operations in 2020, 2019 and 2018, calculated according to the methodology described in section 4.5 of this chapter.

Effluent releases	2020	2019	2018
Chemical oxygen demand (COD) (t O ₂)	1,640	1,950	2,170
Suspended solids (t)	500	571	535

In 2020, COD discharges were substantially reduced at the Alsip site (United States) and the Saint-Auban and Pierre Bénite sites (France). In terms of suspended solid releases, progress was made at Pierre Bénite, Calvert City and Saint-Auban.

FOCUS

Improving the efficiency of effluent treatment

Thanks to the attention paid to its operation and continuous improvement over the past ten years, the Carling facility's biological treatment plant (France) reached an optimum level of performance in 2020, contributing to a 31% reduction in COD discharge.

INTENSIVE INDICATOR FOR EFFLUENT RELEASES

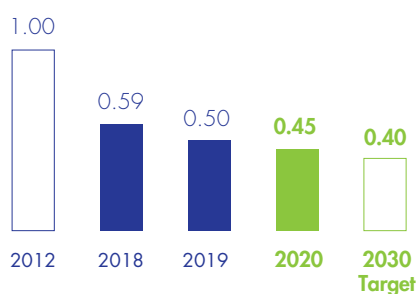
The chart below presents the COD effluent EFPI from the Group's operations in 2020, 2019 and 2018, calculated according to the methodology described in section 4.5 of this chapter. Emissions are calculated using the Group's biggest COD effluent emitters, which account for more than 80% of the consolidated total.

2030 TARGET

Reduce COD emissions, expressed in EFPI terms, by 60% compared with 2012.



Chemical oxygen demand (COD) EFPI



As with absolute values, the significant improvement stems from the various advances in wastewater treatment plants, in particular at a French site and a US site.

Other emissions

Another major focus of the Group's environmental policies is to ease the impacts from its operations on people living in nearby communities. Every year, projects are undertaken to attenuate such other nuisances as:

- odors, by upgrading treatment installations to cut SO₂ facilities;
- 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 impacts 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 vacant brownfield sites, the Group is partnering with local players, academics and specialized companies. For example, in 2019 Corsica Sole installed solar panels to repurpose parcels of land at Arkema's Saint-Auban (France) site. Covering 10 hectares, or 20% of the plant's surface area, the solar power facility plans for annual output of 19 GWh. The energy produced goes towards self-consumption to power the plant's operations.

Provisions for the management of legacy pollution

The amount of provisions for environmental risk at 31 December 2020 can be found in note 10.2.1 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 VALUE CREATION WITH STAKEHOLDERS THANKS TO OPEN AND CLOSE DIALOGUE

The Group's activities are part of a value chain and an ecosystem comprising numerous partners and stakeholders, as described in section 4.1.7 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, the promotion of diversity, and employee engagement and well-being;
- 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

PROMOTE THE INDIVIDUAL DEVELOPMENT AND COLLECTIVE COMMITMENT OF ALL THE COMPANY'S MEN AND WOMEN

2020 was shaped, in particular, by the Covid-19 epidemic. The measures taken by the Group to protect employee health and safety while maintaining business continuity are described in section 4.3.2 of this chapter.

The context also greatly encouraged the use of new technologies across the Group, as described in section 4.4.1.2.

4.4.1.1 Talent management

Arkema considers each of its 20,576 employees as talents. Given the highly technical nature of its businesses, developing expertise 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.

The objectives of its talent management policy are to support the Group's growth in a multicultural environment, make sure it has the expertise it will need in the medium to long term, meet employees' goals in training and individual development, and enhance employee well-being at work. The actions taken to achieve these objectives are described below.

The objectives are based on two quantitative indicators that were updated in 2020 with more ambitious target values for 2030. They reflect the Group's commitment to equal opportunity and acknowledge the contribution of diversity to company performance.

2030 TARGETS

Percentage of women in senior management and executive positions: 30%.

Percentage of non-French nationals in senior management and executive positions: 50%.

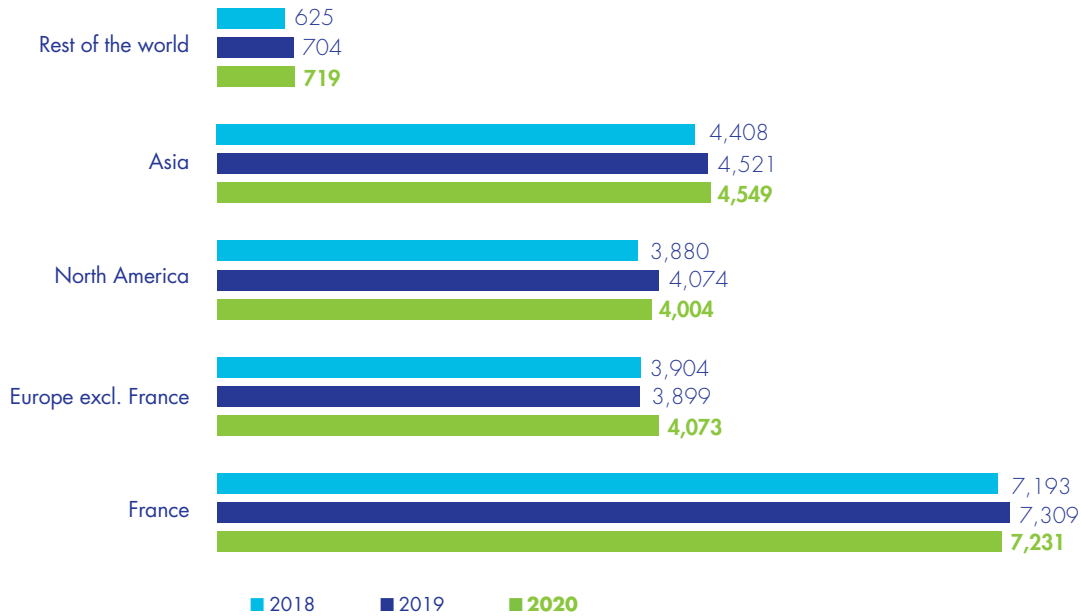


Talent management is based on the principles of workplace equality and non-discrimination. It is exercised in keeping with the Group's core values of simplicity, solidarity, performance and accountability, while moving towards the UN's Sustainable Development Goals, as indicated in section 4.1.3 of this chapter.

To support the Group's development and its global strategy, the organization of the Human Resources (HR) function was adapted in 2020. It comprises both corporate and geographical HR departments. The heads of these departments report to the Human Resources and Communication Executive Vice-President, who is a member of Arkema's Executive Committee. Highlights and project advancement are communicated to the Group's Executive Committee on a monthly basis. Human resources issues and challenges are presented to the Board of Directors once a year.

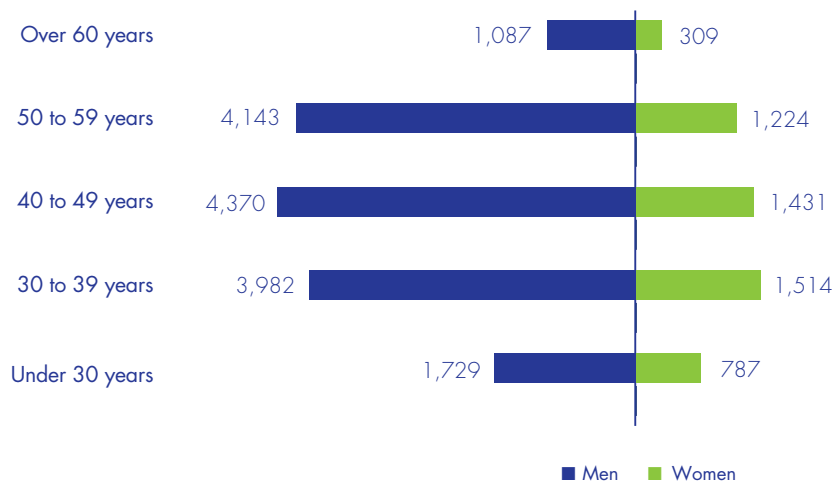
The Group clearly states that it consistently complies with the constitutional texts, treaties, conventions, laws and regulations in force in the countries and regions in which it operates, as detailed in section 4.4.2 of this chapter.

Total headcount by region over the past 3 years



Total headcount stood at 20,576 at 31 December 2020, compared with 20,507 at 31 December 2019 and 20,010 at 31 December 2018. Most of this slight change is due to changes in the business portfolio that took place in 2020, including acquisitions primarily in the Adhesive Solutions segment and the divestment of the Functional Polyolefins business.

Group employee age pyramid



The age pyramid shows a balanced distribution in the various deciles between the ages of 30 and 60, reflecting the loyalty of employees. The Group has an internal talent pool sufficient to cover part of the replacement of employees expected to retire over the next ten years. The training and individual development

programs implemented and described in section 4.4.1.3 of this chapter will allow for the necessary transfer of skills.

The low proportion of employees under 30 is explained by the high level of qualification required by the Group's businesses.

4.4.1.2 An agile and collaborative organization

Work organization

In every country where Arkema operates, it organizes employee work time to enhance engagement and performance, with the approval of employee representatives and in accordance with local regulations.

Given the specific features of its industrial operations, some employee categories may work on regular continuous or on-call shifts. These requirements are taken into account in a special remuneration scheme and adapted work schedule. For employees on shift rotations, the number of employees assigned to a given position and daily shift planning are determined in such a way as to safeguard employees' quality of life.

Work is organized within the Group so as to provide for full-time positions. Part-time employees accounted for 3.8% of the workforce at 31 December 2020. In the majority of cases, these employees have chosen to work part time.

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 was extended to all French sites in 2019, for certain positions. The proportion of employees who could benefit from this arrangement reached 9% of the total headcount in France.

At the Group level, in 2020, nearly 17% of employees telework, either regularly or occasionally, regardless of the health context. This represents a high proportion given Arkema's business.

Faced with the Covid-19 health crisis, the Group's industrial sites continued to operate uninterrupted, while taking all the necessary measures to protect the health and safety of employees. Teleworking was encouraged wherever possible, primarily for services sector employees, and the policy on teleworking frequency evolved throughout the year in line with the recommendations issued by local health authorities. These organizational changes, made possible by the Group's robust and powerful information networks and by the flexibility and commitment of its employees, enabled the Group to continue operating.

The period also led to greater adoption and use of new tools enabling the organization of creative meetings and opportunities for virtual collaboration. Managers were made aware of the importance of maintaining ties and interacting regularly with their teams.

Lastly, a psychological support unit was set up for employees in France and for expatriates and their families worldwide.

Employee engagement

The SMART project is part of the Group's Operational Excellence program. This project aims to bring all employees together under a shared vision, by eliciting their ideas for improvement and helping make active contributions towards progress.

Problem-solving and joint decision-making are two essential focuses of the program.

SMART offers work methods and a collaborative environment to foster and apply ideas and contributions from field staff to benefit from their extensive skills and experience.

This is not a one-off project but a new approach designed to transform the organization and change its culture. Since 2017, 40 sites on three continents have joined the movement in different areas (maintenance, production, supply chain, laboratory, human resources).

FOCUS

Reducing emergency maintenance operations at the Jarrie site (France)

The production and maintenance teams in the Hydrogen Peroxide business have implemented a SMART project aimed at reducing emergency maintenance operations, which are two to three times more costly than preventive maintenance operations and a key source of stress for teams. As a result, the number of emergency maintenance operations has declined by 30% since 2018, resulting in more time and resources for preventive maintenance and better team organization.

Digital transformation

New digital technology is completely transforming the work environment. To keep up with these changes, Arkema supports its employees to help them adapt to this transformation, which can create new performance drivers such as collaborative work within an international organization. The digital transformation is mainly understood in light of two aspects: employee experience and collaborative methods.

Employee experience

Employee experience covers all measures taken to help employees in their everyday tasks and optimize their use of tools.

The Human Resources Information System (HRIS) deployed since 2019 helps to standardize and share processes and data and facilitates access to organizational information. In 2020, the training and recruitment modules were rolled out in the Group's main countries.

In terms of training, new technologies have enabled the Group to offer a range of training modules and types (presentations, videos, games, etc.) that employees can choose from, according to their needs, learning methods and preferred pace. A preliminary self-assessment helps employees develop their training plan. The feedback collected via satisfaction questionnaires allows the relevant expert to adjust the module's content.

ArkemaNews, the Group's intranet, which is translated into eight languages, has for many years informed employees whatever their location, of Group news in real time. An additional version is also in place in the main countries where Arkema operates to provide more specific information on the local environment.

Lastly, the enterprise social networking tool Yammer is widely used within the Group to further contribute to creating an agile, spontaneous work environment. The service is used by members of a group to discuss various topics and share experience. In 2020, more than 370 groups bringing together more than 7,000 employees met to discuss such cross-cutting questions as safety, mutual aid on new digital tools, communication on major projects and even sport.

FOCUS**“Work Together, Work Clever” webinars**

Designed to promote the use of digital tools, the “Work Together, Work Clever” program expanded in scope in 2020, when it was rolled out in Asia and North America. The program is organized into three main areas: training employees in the use of digital tools, supporting units during the transformation process, and exploring and testing new tools. To help Arkema employees become familiar with these tools, the project team has launched a series of webinars with follow-up support. Available in more than 15 countries and 8 languages, these webinars have been viewed by more than 4,000 employees.

The program was particularly useful during periods of widespread teleworking in 2020.

Collaborative work methods

Digital technology offers opportunities to improve the performance of industrial sites by boosting the added value of human capital, as people play a fundamental role in the value chain of the production process.

Digital manufacturing project managers are supported by a network of about 50 “digital champions” in the various businesses and corporate departments. Their primary role is to identify areas where the use of digital technology makes the most sense based on practical experience culled from the field.

They then conduct a Proof Of Concept (POC), a short-term feasibility exercise, to test the value of an idea rapidly before approving a prototype and, where applicable, moving on to industrial scale production. Dozens of POCs have been launched, in operations, maintenance and engineering.

This agile method also relies on the involvement of operational staff to approve the relevance of ideas, therefore identifying promising projects more quickly. Operational staff contribute to each step in the POC, from testing to industrial production.

These various examples illustrate the measures Arkema has taken to enhance collaborative work methods and encourage its teams to embrace digital technology.

FOCUS**Connected glasses at the Memphis site (United States)**

Maintenance workers at the site had expressed the need to share visual and auditory information with off-site experts in order to benefit from their guidance. A camera fixed to a pair of glasses enables them to do exactly that, and also consult digital documents, all in real time.

A similar initiative was used to assist in the start-up of a new Bostik unit at the Osaka site in Japan. For one week, a team of experts located in India were able to provide remote support to the Japanese site to ensure the safe start-up of its new facilities.

This technology makes it possible to respond rapidly to a site's needs and also reduces unit downtime. Its use will be extended in 2021 to other applications (maintenance work, operations, inspections and acceptance), as well as other sites.

4.4.1.3 Personal development and training

Arkema emphasizes the three fundamental areas of recruitment, training and career management to ensure employee development and the Group's sustainable growth.

4.4.1.3.1 Recruitment/Employer brand

The Group's recruitment policies are designed to attract talented, highly skilled individuals to support its growth and workforce renewal. In keeping with core 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.



I Breakdown and change in the number of recruitments by region

	2020	2020	2019	2018
France	25%	322	366	393
Europe (excluding France)	20%	262	260	252
North America	25%	329	437	528
Asia	25%	326	431	565
Rest of the world	5%	71	99	95
GROUP TOTAL	100%	1,310	1,593	1,833

In 2020, Arkema hired 1,310 people under permanent contracts, compared with 1,593 in 2019 and 1,833 in 2018. Maintaining a high level of recruitment against the backdrop of the health crisis reflects the Group's proactive approach to achieving sustainable growth.

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.

To achieve its goals and enhance its reputation while enlarging its international perspective, Arkema designed a global employer brand that is heightened through local actions. The slogan "Go Beyond Your Discoveries" establishes the Company's talent acquisition strategy on three main pillars.

1. Gain recognition from young talent as a responsible, preferred employer

In order to strengthen its reputation worldwide and continuously replenish its pool of potential job candidates, the Group nurtures special relationships with the best educational and training institutions for all its professions.

Arkema's teams participate in forums and organize visits to its industrial sites and research and development centers, particularly in France, China and the United States.

In 2020, these relationships were maintained, and about 30 forums were held remotely via videoconference systems in France, China and the United States.

Arkema received HappyIndex® Trainees France accreditation for the second time in 2021. Based exclusively on feedback from interns and work-study trainees, the "Happy Trainees" label is awarded to organizations where students are motivated by their tasks and happy with their experience.

2. Attracting the best talent through employer branding

To support its growth, Arkema takes a proactive approach, in line with its diversity policy, to attract talent from a variety of backgrounds, and promote gender diversity. The Group uses various channels, including social media, to communicate externally about the Group, its products and its wide range of jobs.

Rolled out at the global level, the visuals highlight the value of Arkema employees at every level in the organization, to provide an accurate picture of their job and encourage different types of candidates to apply. These images are also a way to combat stereotypes and convince potential applicants from diverse backgrounds that they could enjoy a rewarding career at the Group.

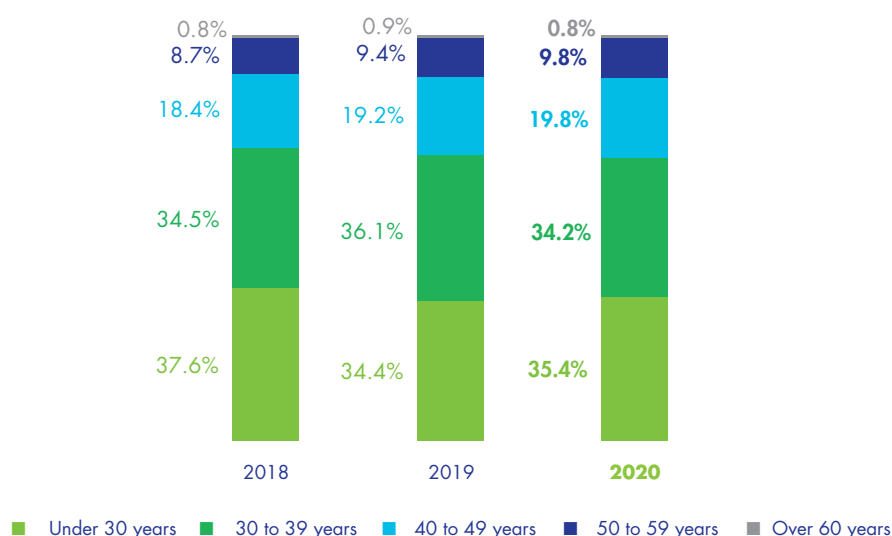
In 2020, Arkema ranked 259th out of 750 on Forbe's list of the World's Best Employers.

Survey participants rated their employers on image, economic footprint, talent development, gender equality and social responsibility.

These actions are carried out on social media such as LinkedIn, Facebook and Twitter, giving the internal network of ambassadors the opportunity to interact directly with applicants. On Glassdoor, the Group's international rating had risen from 3.7 to 3.8 out of 5 at the end of 2020.

Arkema takes steps to ensure the global coordination and centralized management of job applications. By implementing its new HRIS (Human Resources Information System) worldwide, recruiters can coordinate their actions to bring the Group top skills and diverse profiles that can support Arkema in its long-term development.

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. People under 40 have accounted for an average of more than 70% of total recruitments over the last three years.

This illustrates the initiatives that have been in place for several years to proactively respond to the wave of retirements projected over the next ten years.

Recruitments under permanent contracts by age group and gender in 2020

	Male	Female
Under 30 years	323	141
30 to 39 years	320	128
40 to 49 years	184	76
50 to 59 years	97	31
Over 60 years	7	3
GROUP TOTAL	931	379

3. Welcoming and integrating new employees

Arkema guides its new employees, which accounted for around 6% of the Group's headcount in 2020, through the integration process so that they can rapidly become operational.

In 2020, the onboarding tool developed at Group level was rolled out in several languages. The two-hour, interactive webinar is held every quarter for the benefit of new arrivals.

Managers are highly involved in integrating new members of their team. Resources presenting the Group and its organization are made available to them and complete the integration process organized by the new employee's unit.

Managing departures

The actions described above have been implemented to hire new employees and help make up for departures. The action plans outlined in sections 4.4.1.3.2 and 4.4.1.3.3 of this chapter in the areas of training and career management round out the recruitment policy.

The breakdown of Group employees by age group in section 4.4.1.1 of this chapter shows that a significant number of Arkema employees will retire over the next few years.

Change in the number of departures by reason

	2020	2019	2018
Resignations	693	945	1,004
Retirement	310	285	330
Dismissals	331	342	322
Other reasons (including divestment)	286	169	196

In the event of a reorganization or restructuring that leads to the closure of workshops or sites, Arkema endeavors to offer the staff members concerned adapted solutions, such as internal or external redeployment and retraining.

Approximately 100 of all dismissals in 2020 (around one-third) were on economic grounds, and were due to workshop closures and organizational adjustments.

Dismissals for personal reasons represented 1% of the total workforce.

I Change in employee turnover

(as a %)	2020	2019	2018
Turnover	3.5%	4.8%	5.2%

Employee turnover, defined as resignations as a percentage of employees under permanent contracts, stood at 3.5% in 2020, down compared with the two previous years. The decline is attributable to a drop in the number of resignations and was noted in most countries.

Note that resignations concern the managerial and non-managerial categories in proportions close to their respective weighting in the workforce as a whole.

4.4.1.3.2 Training policy

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 resources provided, in order to optimize the time and money invested. In 2020, safety, health, environment and quality (SHEQ) training and business training accounted for 52% and 38% of the training hours provided in the Group, respectively. The hours of training on essential job skills accounted for 68% of all training, while the other hours of training focused on career development for employees.

I Change in training hours (excluding e-learning)

	2020	2019	2018
Percentage of employees having attended at least one training course during the year	80.6%	86.1%	92.7%
Average number of training hours per employee per year	18	25	25
Average number of training hours per manager	16	24	nd
Average number of training hours per non-manager	20	25	nd

The Group's number of training hours totaled 345,611, down 25% on 2019 as a result of the exceptional circumstances related to the Covid-19 pandemic. Nonetheless, the number of hours remained high, as many modules were adapted into virtual classes.

Professional training concerns all employees regardless of their job, level of responsibility or age. 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, as shown by the number of training hours in each job category.

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 feedback 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 Arkema integrated management system.

Training programs can culminate in job progression or rises in grade or coefficient that are conducive to career advancement.

Global Group-wide programs are delivered through two training institutes. In addition to these courses, each entity defines its own training programs based on local needs.

Business institute

These business "academies" are development programs focused on meeting strategic business objectives. Training sessions are led by internal and external instructors to share experience and best practices, standardize processes, enhance professionalization and build skills. The academies already deployed include:

- the Sales Academy, which was set up in early 2018 and has been deployed to support all sales teams worldwide. It has supported the development of the Group's sales strategy, as well as the implementation of a CRM (Customer Relationship Management) application. The benefits are reflected in the customer satisfaction survey conducted by the Group. The survey conducted in 2020 across all B2B customers in the Group's three key regions revealed a very high customer satisfaction score (CSAT) of 84%;
- the Supply Chain Academy, which was created in 2018 and has now been completed by all the managers concerned. In light of the very positive results achieved, Arkema plans to adapt it to the needs of its facility logistics managers in Europe; and
- a Procurement Academy was introduced in 2020 for buyers of goods and services, to accompany the function's increased professionalization.

An IT Academy will be launched in 2021 to help professionals from this technical field keep up with the technological and digital transformation. It will also be open to the teams in charge of digital marketing.

Management institute

The Group has established three management programs:

- the Arkema Leadership Academy is designed for middle managers with high development potential. Training focuses on leadership, allowing managers to analyze their profile individually and take an active role in their professional development. The program is led by HEC in Europe and Asia, and by Cornell university in the United States;
- the Arkema Executive Academy is aimed at experienced managers capable of taking on positions of responsibility within the Group. In a single session bringing together employees from around the world, the aim is to provide participants with the resources necessary to develop their skills as future leaders;
- the Top Executive Academy was created for around 100 executives and is based on internal and external master classes on negotiation, internal control, international business, career management, innovation, legal affairs, digital technologies, CSR, leadership, and finance. In 2020, it was held online as a webinar, connecting executives from around the world.

These programs contribute to promoting executives to positions with greater responsibility: in 2020, 78% of vacancies for senior management and executive positions were filled via internal promotions.

FOCUS

Follow-up to the Arkema Leadership Academy

The 300 or so managers who attended the various sessions held worldwide were invited to participate in webinars as a follow-up to their training program.

The webinars provided an opportunity to discuss such topical issues as decision bias and the management of the health crisis.

This initiative strengthens the network and promotes discussion and teamwork among managers who are destined to take up positions of responsibility within the Group. Around 100 managers participated.

Internally developed training programs

The Group encourages employees who are experts in their field to become an in-house authority and instructor. Subsidiaries in the United States and China have implemented about 15 training modules in diverse areas that are perfectly adapted to employees' needs. These initiatives promote the transfer of skills and highlight the value of instructors' expertise. In this area, around 50 training sessions were conducted internally, attracting some 1,000 trainees.

This type of training provides a way for the Group to offset the risk of losing skills due to the high number of retirements expected in coming years.

FOCUS

Collaborative approach to develop customized technical training resources

In Saint-Auban (France), the procedures for starting up and shutting down the facility's boiler, as well as the safety tests to be carried out, were set down on paper.

Asked to help design training modules with diverse, adaptable content, the site's operators worked with boiler experts to create tutorial videos and easy-to-understand diagrams, thanks to new, user-friendly technologies. Before the final version of the training program was created, the modules were tested and assessed by around 20 operators over a period of several weeks.

Particularly well suited to digitalization and day-to-day knowledge sharing, this collaborative approach promotes the transfer of knowledge and skills – a key issue for the Group in light of its age pyramid.

Number of employees who took 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 facility maintenance. The training offer currently consists of about 15 modules in French and English and sometimes in Chinese, German or Italian, depending on the topic.

These training courses are easily accessible to nearly all employees, most of whom now have a log-in and access to a computer, which makes enrollment easier.

E-learning is used to provide employees with a basic set of behaviors, benchmarks and practices to adopt worldwide in fundamental areas such as business conduct and safety.

	2020	2019	2018
Number of employees who took an e-learning course	10,247	9,517	9,403 ⁽¹⁾
Percentage of employees having taken at least one e-learning course during the year	55%	51%	51%

(1) This amount corrects the figure indicated in the 2018 reference document following the detection of double counting of participants in certain e-learning modules.

The health context encouraged the use of e-learning. The increase compared with 2019 is due to safety training.

4.4.1.3.3 Career management

Career 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 career management 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 Group 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.

The career management policy is 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.

Career management tools

To conduct its business activities with the expected level of performance and prepare for the future while helping its employees meet their goals, Arkema uses a range of career management tools and processes.

ANNUAL PERFORMANCE REVIEWS

All of the Group's employees have the opportunity to discuss their situation with their direct manager in an annual performance review.

The Human Resources Information System (HRIS) tool implemented worldwide at Arkema in 2019 is used to perform these reviews using an electronic format, meaning that information can more easily be shared within human resources and internal mobility can be monitored.

The tool is based on the feedback given 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 specific guidance or training.

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. In

France, several assessment points mark out the course of an employee's career. For example, the "Carrefour 35" meeting is organized mainly for employees around the age of 35 to encourage them to consider where they would like their career path to lead them, particularly within the Group. The individual experience assessment addresses employees around the ages of 50 to 55, to help them enhance their skills while actively passing on their knowledge to others.

Employees working in matrix organizations receive a review from both their direct and their cross-cutting supervisors. The HRIS application is used to structure this practice.

JOB EVALUATION

Arkema has been using the Hay job evaluation method and applies uniform criteria to measure job demands and assess challenges. This system is used by organizations to classify and rank positions within its structure using a common language across different countries. By applying uniform criteria, the Hay method promotes equal opportunity in an objective manner.

In addition to being used as an instrument for horizontal and vertical career development within the Group, these evaluations enable comparisons with other organizations in the industry.

Together with the Hay method, the Matrix assessment is used by career managers to measure expertise (skills, reach, innovation capability).

CAREER COMMITTEES

Various people within the organization are involved in employee performance appraisals to ensure the collective efficiency of teams and a clear, objective and fair basis for internal promotion.

Each site sets up its own career committee, which brings together management committee members, career managers and the human resources manager every two months to cover all employees regardless of job category.

Career committees are also organized by type of job to plan intersite mobility and assess Company requirements, then map out career paths and renew the talent pool accordingly in order to meet those needs.

PEOPLE REVIEWS

As the Company and its businesses continuously evolve, the organization must identify the right talent and support them. Career managers and operational managers conduct people reviews to boost employee development and loyalty in such a way that also works towards meeting the Group's future needs.

These annual collaborative reviews are used to examine career path scenarios for employees likely to move on to positions of responsibility and/or develop professionally.

Every year, key people within each level in the Group's organizational hierarchy draw up a list of high-potential employees within their teams. Based on an in-depth assessment and overview, heads of corporate departments and Group businesses, career managers and operational managers work together to select a pool of high-potential talent.

Following the people reviews, career managers set forth an individual career development plan, which is rigorously monitored and adjusted if and when necessary.

On a global scale, operational managers and career managers regularly review geographic mobility options for employees looking for this type of opportunity.

SUCCESSION PLANNING

Given Arkema's industry and the technical nature of its businesses, succession planning covers all levels and professions within the organization to ensure that key roles can be filled while maintaining the same level of expertise. The list of different positions in the Group is matched with a selection of potential candidates, who engage in a career development plan supported by various internal processes.

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.

The number of Group employees working as expatriates, for an average of three years each, is around 100, reflecting the Group's priority focus on promoting or hiring locally whenever possible, including for executive or high responsibility positions.

Four programs aligned with the different international mobility objectives are available:

EXPERTISE

This program enables employees who are contributing to implementing 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.

TALENT PROGRAM

Introduced in 2016, this 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.

4.4.1.4 Employee engagement and well-being

Arkema believes that employee engagement and well-being at work are key factors to ensure the Group's long-term efficiency. The materiality assessment conducted in 2019 and described in section 4.1.7 of this chapter confirms the importance that both internal and external stakeholders attribute to this area. The Group firmly believes in developing open dialogue with employees to continuously improve the quality and safety of the work environment, and the relationship employees have with their job, along with work atmosphere and organization.

In 2020, Arkema initiated a worldwide process to develop a global policy on workplace well-being based on four key areas:

- occupational health;
- work environment and conditions;
- working in the digital age; and
- workplace relations.

The HR and CSR teams from various countries are actively involved in the project, which aims to define key principles that can then be adapted to local situations. The initiatives undertaken will subsequently be assessed via employee engagement surveys.

Employee engagement and satisfaction

Europe

Arkema periodically carries out internal surveys 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 and 38% of all Group employees, 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.

The results were very positive, as demonstrated by the Net Promoter Score (NPS). The most commonly used indicator in this area, the NPS measures on a scale of 1 to 10 how likely employees are to recommend their company to others. The very high score achieved by Arkema (20) reflects employees' attachment to the Company.

The findings were analyzed in detail for each entity and shared with employees. In 2019, they were used to prepare action plans on internal communication about professional opportunities within the Group.

China

In 2019, a similar survey was conducted in China, which represents 14% of the Group's workforce. This survey covered broad themes, and employees responded expressing a high engagement rate and strong sense of pride and belonging. All Chinese subsidiaries participated in the exercise, involving 2,900 employees, of which 27% women. Management supported and promoted the survey to encourage employee involvement, resulting in a high response rate of 93%.

United States

In 2019, the Group conducted a survey of some 4,000 employees based in North America and Brazil. It focused on around 15 different themes, with an emphasis on safety, corporate culture and employee engagement. The response rate was 86%.

In the past three years, no fewer than 71% of Group employees have been able to express their opinion and 80% of them are actively engaged.

Work/life balance

Arkema intends to remain a great place to work. This is essential to employee well-being and performance, but also in retaining talent and increasing the Group's attractiveness for candidates, which all contribute to Group performance.

The main ways in which the Group helps employees achieve better work/life balance are flexible work arrangements, support for working parents, and improvement of the work environment.

Arkema uses collaborative working methods, thus encouraging teleworking to provide employees with greater flexibility in their work/life balance. As stated in section 4.4.1.2 of this chapter, almost 17% of the Group's employees teleworked in 2020, which is a high proportion in view of its industrial activity.



Another advantage offered to young parents to safeguard their work/life balance is paternity leave granted at the birth or arrival of a child. Arkema confirms the importance it gives to parenting by maintaining the employee's full pay during the leave period. This measure applies to many employees across Europe.

Mobile technology has significantly changed the Group's work methods and practices. Keenly aware of the importance of using these devices responsibly to promote the well-being of people within the organization, Arkema has taken measures in France to raise employee awareness about how to use and behave with mobile technology, such as:

- an information brochure on the use of portable devices and email management;
- awareness weeks organized for all employees: self-assessment questionnaires on practices, expert insight and practical tips; and
- awareness training for managers.

Actions taken to prevent psychosocial risks and to improve working conditions

Going beyond the legal requirements, the Group has implemented stress prevention policies in its key countries, including France, China and the United States.

These policies provide for the assessment of stress levels among employees or for particular positions, as well as training and awareness initiatives to reduce workplace stress.

Arkema also actively raises employee awareness about the risks of excessive digital use. Its current campaign on hyperconnectivity is mainly being led in France, with a "digital etiquette week".

Lastly, an ergonomics program was initiated in 2015 to improve different aspects of working conditions in both manufacturing and services. The program has been deployed in France and will be extended to other countries where the Group operates.

FOCUS

AGORA: an immersive collaborative space at the CETIA technical center in Lyon (France)

Located on the building's ground floor, Agora provides employees with:

- meeting rooms fitted out with videoconferencing equipment;
- collaborative workspaces equipped with innovative technologies that can capture and summarize work done in groups; and
- an immersive space that can model facilities and is particularly well suited to design phases.

Some of the digital projects being carried out at Arkema are also presented in this way and are helping to foster the emergence of new ideas.

In recent years, major changes have been made to the work environments of employees at the head office of Arkema China Investment in Shanghai and those at the Bostik head office in Colombes, near Paris. These projects were carried out with input from the employees concerned, to ensure a comfortable work environment adapted to their needs. Pleasant workspaces significantly contribute to employee well-being.

The Social Club launched in China is another example of initiatives taken to improve well-being in the workplace. A wide range of sports and leisure activities is available for employees. This contributes to their fulfillment and well-being, while encouraging them to talk to each other as equals, without regard for their position in the hierarchy. These actions reinforce employees' feeling of belonging and make a positive contribution to the subsidiary's social life.

This set of initiatives is a factor in the decline in employee turnover seen in 2020 (see details in section 4.4.1.3.1 of this chapter).

Absenteeism

Absenteeism, which includes sickness, accident and maternity leave, as well as strikes and unpaid leave, stood at 5.1% for 2020, up compared with 2019 (4.2%). The context of the Covid-19 pandemic brought about this difference, explaining the increase in the absenteeism rate on medical grounds (2.8% in 2019, 3.3% in 2020), as well as the absenteeism rate for other reasons (absences caused by the pandemic).

For further details, see section 4.5.4 of this chapter.

Benefit schemes

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 line with local requirements and practices. 95% of Group employees accordingly receive supplementary life cover, 90% supplementary disability cover, and 78% health insurance cover.

4.4.1.5 A motivating and competitive compensation system

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.

37% of employees receive some form of individual bonus, whose amount 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.

73% 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.

Group companies regularly participate in compensation surveys organized by specialized structures. They have access to benchmarks used to position them on their geographic market, as against other industrial groups or within the chemical industry, and measure compensation attractiveness.

All employees benefit from minimum compensation guarantees, and are paid on time, in full and without any deductions.

Total payroll costs for 2020 and previous years are presented in note 6.2 to the consolidated financial statements, in section 5.3.3 of this document.

Equal pay between men and women

With an average proportion of women on its payroll of 25.6% at 31 December 2020, which is steadily increasing, the Group did not wait for mandatory regulations to make equal pay a key factor in annual salary and career reviews at all Group companies.

In France, Arkema France and Bostik publish their gender equality scores, as required by law. For 2020, the figures are respectively 78 and 84.

In addition to equal pay, Arkema has for many years ensured that women enjoy the same career development opportunities as their male counterparts.

Its policy aims to meet the following four objectives:

- 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.

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.

At 31 December 2020, 6.7% of outstanding shares were owned by employees, 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 2020, performance shares were granted to some 1,500 beneficiaries, representing 7.3% of the total headcount. 30% of these beneficiaries are women.

For more information, please refer to section 3.5, section 6.2.6 and note 6.4 to the consolidated financial statements at 31 December 2020 in section 5.3.3 of this document.

4.4.1.6 Diversity, equal opportunity and equal treatment

Diversity and equal treatment policy

As part of its policy of non-discrimination, workplace equality and diversity, the Group commits to promoting the elimination of all forms of discrimination in its operations, and to hiring people solely on the basis of its needs and each applicant's personal qualities, as defined in its Business Conduct and Ethics Code and its human resources policy memo. These principles feature in the Group's recruitment charter.

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, nationality or mandate as employee representative. 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;
- 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;
- certification training courses: 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 mobility; and
- an annual review of compensation to ensure equal pay.

The strategic objectives set by the Group for 2030, to increase the percentage of women and of non-French nationals in senior management and executive positions, reflect its efforts to support diversity in carrying out its business activities.

A Diversity Steering Committee made up of heads of Business Lines and corporate Vice-Presidents works to promote and implement initiatives that support diversity. Created in 2019, the "Managing in diversity" module was rolled out in 2020 to Italy and Germany. Around 30 managers in these two countries have participated in the training.



Measures to promote female employees' access to positions of responsibility

Although historically not many women have worked in the industry, the proportion of women in the Group's total headcount has steadily increased to 25.6% at 31 December 2020. Women accounted for 28.9% of new hires across all levels in the organization, but they remain under-represented in senior management.

2030 TARGET

To strengthen its commitment in terms of diversity, the Group set a more ambitious target in 2020: 30% of senior management and executive positions to be held by women.



In 2020, women accounted for 23% of all senior managers and executives across the Group, remaining stable compared with 2019 after a two-point increase from 2018. The change is primarily the result of the support program introduced in 2016 to promote equal opportunity and gender diversity.

Senior managers and executives are considered as high responsibility positions. They account for about 10% of Group managerial employees and 23% of them are women.

During the annual review of human resources issues carried out by the Board of Directors, the number of women on the governing bodies is always examined very closely. The goal of increasing the proportion of women in senior management and among managers by 2030, defined as a priority in 2015, is the response given to this challenge. Within senior management and among managers, which constitute a pool for governing body members, support for women's careers is regularly examined by ad hoc committees.

Within the scope comprised of France, the United States and China, women hold 37% of lower management positions and about 33% of middle management positions. The action plan to reach the target involves:

- a mentoring program run by senior executives to help women move into positions of responsibility. Since its creation in 2016, the program has benefited 75 women in France and is now being expanded internationally. Nearly 90% of them have enjoyed career development since their mentoring, for the most part a promotion to a position with greater responsibility;
- 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.

Initiatives to foster international diversity

Developing the percentage of employees of non-French nationality in management positions is a key component of the Group's geographic growth strategy.

2030 TARGET

To strengthen its commitment in terms of diversity, the Group set a more ambitious target in 2020: 50% of senior management and executive positions to be held by non-French nationals.

In 2020, 41% of senior managers were non-French nationals, compared to 40% in 2019.

In every country where Arkema operates, local skills and capabilities are developed in every aspect of the business, including top management.

The action plan involves:

- expatriation programs (for further details, see section 4.4.1.3.3 of this chapter) and more specifically the "Talent Program" for the most junior employees;
- an international mentoring program, introduced in 2020 and based on the same principle as the program designed to help women advance their careers. Around ten pairs of mentors and mentees have already been set up in Asia, North America and Europe. The program gives talented young employees the opportunity to benefit from the support of a mentor and to increase their visibility within the Group;
- training for managers on "working in an intercultural environment"; and
- training on "managing in diversity"; more than 200 employees were trained in France in 2019 and the program was rolled out in Europe in 2020, with 30 managers participating.

Initiatives to promote the employment 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 measures taken in France illustrate the approach implemented by the Group. For the other regions, similar measures have been implemented taking into account local conditions and legislation.

At the end of 2020, disabled employees accounted for 5% 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.

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.

Initiatives to hire and retain seniors

In France, the issue of recruiting and retaining seniors is included in the strategic workforce planning (SWP) agreement. "Seniors" are defined as people over 50 years old. The Group pledged to undertake initiatives in the following areas:

- recruitment: 10% of permanent contracts for people aged 50 and over;
- retaining senior employees;
- supporting career-endings;
- transitioning to retirement; and
- knowledge transfer.

In 2020, 30 of the 322 people hired under permanent contracts in France were over 50 years old, representing 9.3% of the total.

4.4.1.7 Active social dialogue with employee representatives

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 Business Conduct and Ethics Code.

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.

Arkema pledges to enforce a non-discrimination policy with regard to employee representatives, and to respect and protect their rights. In France, a training program is offered to newly elected 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 24-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 2020, two plenary meetings were held via videoconference. The topics discussed included management of the Covid-19 crisis in Europe and the related business and organizational issues.

In addition, the European Group Works Council was notified about the divestment of the Functional Polyolefins business.

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

An Employee Representatives Congress of Arkema China Investment Co. Ltd, the Group's main local subsidiary, is in place. 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 2020, as shown in the following table.

I Percentage of employees represented by elected bodies and/or unions, by region

	2020 *
GROUP TOTAL	90%
France	100%
Europe (excluding France)	93%
North America	75%
Asia	86%
Rest of the world	100%

* Data corresponding to sites employing more than 60 people, which accounts for 91% of the Group's total workforce.

Employee relations with regard to the Group's development

When a reorganization project is approved and implemented, in-depth discussions are held with the representatives as part of information and consultation procedures, both at corporate level and locally. Similarly, much attention is paid to responding responsibly to the social impact of these changes.

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.

The implementation of social and economic committees in France was completed in 2019.

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 recent years, health and well-being in the workplace have been extensively discussed with labor representatives. For example, teleworking was extended to industrial sites, for certain positions, in 2019. An occupational health framework agreement was signed at Arkema France to continue to improve employee health and implement a coordinated policy covering commitments made during negotiations. Shared indicators are monitored at the Company and entity level by multidisciplinary committees.

In 2020, 83 agreements were signed worldwide, including 26 in France. Social dialogue continued during the year despite the health crisis, with meetings held via videoconference.

4.4.2 Compliance and ethics

The Group places great importance on conducting its business in line with the principles and rules on compliance and ethics. As such, Arkema complies with prevailing laws, regulations and best business practices. Failure to respect these policies would expose the Group to legal or reputational risks.

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.

4.4.2.1 The Code of Conduct and Anti-Corruption Policy

The Group's Business Conduct and Ethics Code (also known simply as the "Code of Conduct"), which includes the Anti-Corruption Policy, sets out Arkema's best business practices expected of all employees at all times.

The Code of Conduct covers the following main points:

- employees must not offer, provide or accept, directly or indirectly, any undue advantage, be it pecuniary or otherwise, in order to secure business relations or any other business advantage. The counterparties who may be concerned include people in positions of public authority, business intermediaries, client employees and political parties;
- employees must scrupulously comply with all applicable laws relating to antitrust legislation in every country in which the Group operates; and
- employees must comply with import and export regulations.

Laying down the Group's directives on influence peddling and corruption, the Anti-Corruption Policy:

- defines corruption and influence peddling;
- provides concrete examples of behaviors to avoid that could be construed as acts of corruption or influence peddling; and

- outlines the basic set of rules relating to gifts and hospitality offered to employees.

The Code of Conduct and Policy were translated into the 12 languages of the main countries in which the Group operates and sent to all Group employees by the Chairman and Chief Executive Officer in October 2018. These documents and their translations are available on the Group's website:

<https://www.arkema.com/global/en/arkema-group/ethics-and-compliance/>.

Since 2020, Group employees have committed, as part of their annual performance review, to respect Arkema's business compliance and ethics program, which includes the Code of Conduct and the Anti-Corruption Policy (see section 4.4.2.2 of this chapter). The commitment is made via the electronic form used for annual performance reviews and replaces the compliance statement previously signed by employees. The compliance statement signature process is nonetheless maintained for employees without access to the electronic form.

4.4.2.2 Measures for reducing the risks of anti-competitive practices, corruption and fraud

Arkema has put in place a business compliance and ethics program, which primarily covers antitrust, export control and anti-corruption laws. 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:

- classroom 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; and
- e-learning modules on the Code of Conduct, anti-corruption and antitrust legislation, with the latter primarily aimed at employees who are most exposed to these risks. As of 31 December 2020, 7,000 employees had completed the e-learning course on corruption.

4.4.2.3 Control procedures and disciplinary action

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, Sustainable Development, 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 2020.

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.

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.

The corruption risk map, mentioned in section 2.1.2 of this document, is updated regularly.

Disciplinary actions are provided for in the Code of Conduct and the Anti-Corruption Policy in the event of a breach of policy therein. The details are described in the internal rules of each entity. Of the alerts submitted in 2020, allegations were founded in three cases and resulted in disciplinary action. In the area of business integrity, one employee was dismissed for collusion with a supplier. And in the area of respect for employees, one employee was dismissed for harassment, and another was laid off for inappropriate behavior.

4.4.2.4 Personal data protection

Arkema takes steps to comply with personal data regulations in all the countries in which the Group operates. The set-up of a network of local representatives, supervised by the Data Protection Referent, will be finalized in 2021 to enable consistent, global management of personal data protection within the Group.

The Data Protection Referent works closely with cybersecurity teams to implement IT security measures in line with the General Data Protection regulation (GDPR) that will protect data handled by the Group.

4.4.2.5 Whistleblowing system

The Group's whistleblowing procedure has been translated into 12 languages and is available on the Group's website: <https://www.arkema.com/global/en/arkema-group/ethics-and-compliance/whistleblowing-procedure/>. The procedure was submitted to the Central Works Council of Arkema France in June 2018, and extensive communication has been deployed (email addressed to subsidiaries, signage at sites and subsidiaries, intranet posts) to strengthen the awareness of employees at all levels of the organization to these issues. 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. It can be used to report any issues relating to the Code of Conduct, in particular social impacts, including health, safety and Human Rights violations, environmental impacts and corruption.

The reports are handled by the Whistleblower Committee, which acts in the strictest confidentiality. 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.

Five alerts were received through this system in 2020. Two of them concerning violations of respect for employees were substantiated, and led to a dismissal for harassment and a layoff for inappropriate behavior. Two other complaints, one involving discrimination and the other intellectual property, did not result in disciplinary action. The fifth alert, which questioned the integrity of one employee, was still being investigated in January 2021.

4.4.2.6 Tax policy

Arkema conducts industrial, commercial and service operations in many countries and communities around the world. The Group aims to contribute to the development of these communities through the payment of a tax related to the activities and functions it performs within them.

Arkema complies with the tax laws and regulations of the countries in which it operates, as well as international tax standards, in particular those developed by the OECD. To do so, Arkema relies on a tax department that has tax professionals in the countries where its challenges are greatest. In other countries, the Group's tax department calls on recognized external consultants whenever necessary to validate its practices.



The main objective of tax policy is to provide the Group with long-term legal certainty. Arkema condemns and seeks to prevent all forms of tax evasion. As such, it does not implement aggressive tax planning geared towards transferring tax bases without justification to countries with low tax rates. Neither does it create legal structures devoid of substance for fiscal reasons in such countries. As of 31 December 2020, none of the Group's subsidiaries was located in tax havens included on the European Union "black list" dated 1 January 2021.

Arkema applies transfer pricing policies endorsed by the OECD to its inter-company flows, and believes its policies to be reasonable in view of the risks and functions of the entities making up the

Group. These policies and the corresponding practices are applied within the Group by the tax department, first, via training for the employees responsible for applying them, and second, by making documentation available to tax administrations in a timely manner, either spontaneously or on request, depending on the regulations of the country in question.

Arkema cooperates with tax administrations with integrity and transparency when being audited, and ensures the implementation of any corrective measures when the audits are completed. Tax risk reporting is integrated into the risk management process and is presented annually to the Group Audit Committee.

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.

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.

Arkema's commitment in this area is set out in a Human Rights Policy. Arkema's Executive Committee is responsible for drawing up and disseminating the policy in all entities, 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.

Arkema's commitment is reflected in its compliance with international standards and the applicable laws in the countries in which the Group operates, identification and 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 risk identification process is based on a review of internal feedback, general risks presented in the International Labour Organization's Declaration on Fundamental Principles and Rights at Work and the International Bill of Human Rights, risks specific to the chemicals industry, such as risks concerning the health and safety of employees, local communities, customers and end users, the management of major industrial incidents, the transportation of hazardous goods and the commitment of suppliers and subcontractors, which covers the sourcing of conflict minerals.

Identified risks are assessed 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.

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.

Arkema's 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 over the past three years confirms the validity of the approach adopted by the Group;
- health and safety of customers and end users: programs and initiatives on responsible product management are presented in section 4.2.5 of this document;
- suppliers and subcontractors: programs, initiatives and results are presented in section 4.4.4 of this document. In 2020, the scope of supplier assessments increased further, and a long-term target was set; and
- promotion of diversity and equal opportunity: programs and achievements are described in section 4.4.1.6 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.

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.

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.

In 2020, the Group used the available internal audit data to identify and analyze any potential Human Rights violations related

to its activities. The results confirmed the absence of any serious violations and did not show any regional differences. Despite this, to prevent these types of violations, improvement initiatives essentially involving safety have been implemented at 11 Group sites over the past three years.

Actions relating to the whistleblowing system are described in further detail in section 4.4.2.



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 these subcontractors and service providers 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 its choice of industrial and business partners, Arkema favors those that respect its social commitments.

A Sustainable Purchasing Steering Committee meets at least three times a year, bringing together representatives from the Procurement departments (Goods and Services/Logistics/Raw Materials and Energy) and the Sustainable Development department. The key items discussed during its meetings are reported to the CSR Steering Committee, and points covered by the vigilance plan concerning suppliers and subcontractors are submitted to the Risk Review Committee. To reduce risks and promote long-term relations with suppliers and subcontractors, Arkema deployed the resources described in the following sections.

Subcontracting

The Group subcontracts for two main purposes: for investment programs and industrial services, 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 in 2020 to safety, the environment and the maintenance of industrial units.

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 4.4.2.1 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 interentreprises*), which is based on ten responsible procurement commitments. As part of this process, a dedicated Supplier Code of Conduct summarizing all of the related CSR aspects has been issued and circulated to all Group entities.

The Supplier Code of Conduct's guidelines particularly cover human and employee rights, respect for the environment, the quality and safety of the products and services provided, and

compliance and ethics. 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. All new suppliers and subcontractors are informed of the code's provisions and are expected to comply with these provisions in addition to general purchasing conditions.

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 2020, sessions were held to present the responsible procurement approach to buyers from all departments and regions. These sessions were followed up with reminders, updates and discussions about implementing the Together for Sustainability supplier assessment initiative. As a result, all Group buyers have received sustainable procurement training in the past three years and over 90% participated in training or update sessions in 2020.

4.4.4.3 Selection of suppliers and subcontractors

The procurement departments carry out preliminary assessments before entering into any business relationships with suppliers or subcontractors, as part of the selection process. These assessments are based on robust criteria that notably include corporate social responsibility issues. Two sources of information are used for these assessments:

- questionnaires that cover performance and aspects of compliance, enabling Arkema to assess the supplier or subcontractor's ability to meet Group requirements, particularly in terms of ethics, safety and the environment, corporate social responsibility and product quality. These questionnaires are accompanied by certificates and other supporting documents provided by the supplier or subcontractor; and
- external databases that provide information and assessments of companies' financial solidity, performance and compliance. For corporate social responsibility, the Group uses the Ecovadis ratings platform.

Logistics services contracts are awarded to transporters and warehouse operators on the basis of their 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.

Raw materials suppliers are notably questioned by the Group about their management system, their compliance with the principles of the chemicals industry's Responsible Care® program, their certification to ISO-type standards and their ability to manage the transportation of raw materials to our sites in line with the safety requirements.

In 2020, the Group strengthened its process for assessing and selecting suppliers of trade products. As a result, full consideration is now given to social, environmental and ethics criteria.

4.4.4.4 Assessment of suppliers and subcontractors

In the context of relationships with suppliers and subcontractors, and in order to drive continuous improvement in safety performance, environmental impact, business ethics, quality and innovation, the Group's three Procurement departments have introduced continuous assessment processes via two complementary systems:

- the first is a periodic assessment based, in particular, on the supplier or subcontractor's observed performance in terms of its commitments, the number, type and management of any complaints, and the CSR assessment conducted via the Together for Sustainability initiative described below;
- the second system is based on targeted audits. The audit schedule is defined annually by each Procurement department, giving priority to suppliers and subcontractors whose performance requires improvement. Under the Supplier Code of Conduct, suppliers and subcontractors agree to meet all of the Group's CSR expectations and to cooperate with its audits of their compliance with the code.

In line with Arkema's HSE policy, the Goods and Services Procurement department regularly assesses the employee safety performance of the leading contractors working on Group sites. The results of these assessments are systematically discussed during contract reviews. As explained in section 4.3.2.2.1 of this chapter, the safety of contractor employees is considered just as important as that of Arkema personnel, and their incidents are included in the Group's safety performance.

Supply chain service providers are regularly audited with 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. Inventory requirements were tightened for warehouse operators to obtain an itemized list of the Group's products in stock and their exact location in real time. Inspection processes and resources were updated in 2020.

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.

FOCUS

Stricter requirements for materials storage

In line with its policy of continuous progress and following feedback from recent events outside the Group, in 2020 Arkema reviewed its process for selecting external warehouse facilities (via logistics service providers, subcontractors or freight forwarding agents) and standardized practices Group-wide based on the most demanding criteria. As a result, storage sites are now classified in accordance with the risks associated with the materials stored. In addition, the HSE assessment carried out prior to each contract has been adapted for each category to more effectively prevent fire risks. Lastly, the requirements for tracking quantities and storage locations have been tightened.

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 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. The issues discussed during its meetings are reported to the CSR Steering Committee and the Risk Review Committee.

At the end of 2020, more than 1,600 of the Group's suppliers and subcontractors had been assessed according to CSR criteria over the last three years. 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.

During the year, CSR scores rose for 59% of suppliers whose assessments were updated.

At-risk suppliers

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.

2025 TARGET

To continue its efforts in the area of responsible procurement, the Group has set the following strategic target: 80% of purchasing spend from relevant suppliers covered by a TFS assessment.



In 2020, the percentage of purchasing spend from relevant suppliers stood at 68%, stable compared with 2019. Relevant suppliers are recurrent suppliers representing 80% of the Group's purchasing spend.

4.4.4.6 Special cases

Bio-based materials

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, Project Pragati has trained 4,600 farmers and awarded them with official project certificates. The results have been very positive and notably include a higher crop yield, improved health and safety conditions for farmers, and judicious use of fertilizers and irrigation water since the adoption of best agricultural practices in 69 villages. This project was renewed in 2019 for three years, with the aim of training more than 7,000 farmers in total. The Sustainable Castor Association, an independent secretariat, was established to promote SuCCESS (Sustainable Castor Caring for Environmental and Social Standards), on which Project Pragati is based.

4.4.5 Institutional initiatives

As a responsible chemicals producer, the Group is in contact 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 reports on its business annually to meet its disclosure requirements

Conflict minerals

Since the 2010s, key concerns have emerged about minerals from politically unstable areas. Some illegal minerals operations are used to fund violent activities that maintain or encourage conflict in these areas.

Regulations passed in the United States (2010 United States legislation, Dodd-Frank Wall Street Reform and Consumer Protection Act, Section 1502) and the European Union (Regulation (EU) 2017/821 of the European Parliament and of the Council of 17 May 2017) urge organizations to source materials responsibly, by applying reasonable care to due diligence and compliance measures for the specified minerals (tin, tantalum, tungsten and gold) coming from conflict-affected and high-risk areas, such as the Democratic Republic of Congo (DRC) and adjoining countries.

The Group does not directly purchase "conflict minerals", as identified in these regulations. Arkema is nevertheless committed to responsible sourcing and has implemented a conflict minerals program.

If the products it buys contain conflict minerals, as defined by the regulations, Arkema requests its suppliers to provide information about the origin of these minerals. In its concern to uphold responsible sourcing practices, the Group makes every effort not to purchase raw materials that Arkema has reason to believe could originate from the DRC or neighboring countries, unless they are certified "conflict-free". Arkema also supports its customers in complying with regulations, by answering their inquiries as to whether the products purchased contain conflict minerals.

In 2013, Arkema implemented a conflict minerals program utilizing tools and recommendations developed by the Responsible Minerals Initiative (RMI) and set up a framework with its partners along the supply chain. This program is deployed throughout the Group and aims in particular to facilitate the commitment and reporting of suppliers, to automate the generation of Conflict Minerals Reporting Templates (CMRTs), to answer quickly to customers' requests and to coordinate activities between the different functions of the company.

In this way, the conflict minerals management program enables Arkema to meet its regulatory obligations and handle customer requests, while reducing critical risks on its supply chain.

as a registered 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 numerous chemical and material 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 close to 50 other specialized industry associations worldwide whose objectives are closely related to its businesses.



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 the 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 circular economy and the energy and climate transition. Concerning the climate, the Group has aligned its roadmap – and its stance – with the objectives of the Paris Agreement. In reducing its carbon footprint and adapting its solutions, the Group strives to contribute to the national and European 2050 carbon neutrality target.

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. Three Arkema Inc. employees have been registered as lobbyists to Congress.

Worldwide in 2020, out of a total of €5.5 million, the Group paid €3.8 million in membership fees to general or specialized industry associations. The three highest fees went to France Chimie, CEFIC and Federchemica, accounting for 40% of the total amount paid. Approximately 20% of the fees support lobbying efforts. The Group also paid €0.5 million in consultants' fees on issues including climate change and product stewardship, and recorded €1.2 million in related in-house expenses.

The Group expressly confirms that it does not finance any political party or organization in the countries where it operates with the aim of influencing their position or obtaining special treatment that could be interpreted as acts of corruption.

4.4.6 Corporate citizenship and philanthropy

In the 54 countries where it operates, the Group positions itself as a force contributing to the social development of the communities in which it operates, 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 come 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 universities or research institutes 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.

Support for small and medium-sized businesses

These kinds of local partnerships contribute to stimulating innovation, while deepening the Group's local roots. For example, at the Lacq site in France, we provide 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, new energies and 3D printing.

In 2019, Arkema inaugurated a new Global Center of Excellence for 3D printing at its Cerdato Research and Development Center in Serquigny, Normandy in the north of France. With the Normandy Region authorities as its partner, this center of excellence was created to manufacture additive powders made with high-performance polymers. It will benefit companies and training organizations in the region, as part of a collaborative initiative striving for swift adoption of these new production methods. Dedicated to printing by powder bed fusion, the center complements the Group's existing network, which comprises a center based in Exton (Pennsylvania, US) for photocure liquid resins inaugurated in 2018, and another in King of Prussia (Pennsylvania, US) for filament extrusion.

Also in 3D printing, Arkema aims to forge partnerships with players in the additive manufacturing ecosystem, particularly in the United States:

- a collaboration agreement entered into in 2019 with Idaho-based Continuous Composites was followed up in 2020 with the acquisition of an interest in the SME in order to speed up the development of its continuous fiber 3D printing technology;
- a strategic partnership has been signed with California-based Carbon to support the next generation of fully integrated digital manufacturing platforms; and
- in 2020, Arkema acquired an interest in Adaptive3D, a Texas-based start-up that develops premium polymer resins for additive manufacturing.

Academic partnerships

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 and several universities in France, the United States, Canada, Belgium, Japan, South Korea and Malaysia. These partnerships are set out in section 1.1.5 of this document.

In 2016, Arkema opened an innovation center in South Korea within the HanYng 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 in Malaysia, which is located just outside Kuala Lumpur. The aim of this collaborative research center is to enhance understanding of biocatalysis, a discipline that could lead to more sustainable processes than those achieved with traditional chemistry or the identification of new avenues for producing sulfur products.

Promotion

In France, Arkema took part in Big Tour 2020, an initiative led by Bpifrance aimed at promoting French innovation expertise to the general public, while also raising awareness about climate change and career opportunities.

The 21-stage summer tour enabled Arkema to present and explain four of its flagship innovations. At each stage of the tour, more than 10,000 people learned about 3D printing, Pebax® material and its role in sport, water treatment using Kynar® PVDF, as well as Bostik adhesives.

Number of Common Ground® initiatives by region

	2020	2019	2018
GROUP TOTAL	642	990	1,064
Europe	278	480	421
North America	255	369	486
Asia	65	92	126
Rest of the world	44	49	31

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, entry into the workforce, diversity and environmental protection as well as health. 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.

4.4.6.2.1 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 with stakeholders in every host country.

Designed to improve the social acceptability of chemical plants and develop understanding about the Group's business, it is based on the following key principles:

- 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; and
- 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.

In addition to these discussions about the Group's activities, Arkema also contributes to the social and economic dynamics of local communities through philanthropy initiatives.

Operational implementation of the Common Ground® initiative is overseen by the Group's site managers, who are supported by human resources or communication managers. Employee participation, on a voluntary basis, is also a key component.

Common Ground® actions around the world

In 2020, 642 Common Ground® initiatives were carried out worldwide, down from previous years due to the Covid-19 situation. However, the percentage of industrial sites that have led Common Ground® actions remained stable (78%), reflecting the solidarity of sites that maintained their approach of listening to and working with local stakeholders. The Group thus showed its commitment to continuing to develop strong ties with local communities and to contributing to the social and economic dynamics of all regions where it operates.



In 2020, 80% of production plants took part in these initiatives in the United States, 80% in Europe, and 82% in Asia.

These initiatives for people living near Group facilities are mainly aimed at local stakeholders, breaking down by category as follows in 2020: local communities (115 initiatives), schools and universities (139), non-profits and NGOs (205), institutions (168), business partners (25) and the media (8).

4.4.6.2.2 Initiatives relating to priority issues

In line with its history, businesses and core values, and more particularly the values of solidarity and accountability, the Group takes action both globally and locally to address social challenges that it sees as a priority.

Response to the Covid-19 health crisis

Right from the start of the health crisis, Arkema's priority was protecting the health and safety of its employees and supporting its various stakeholders.

In the various countries where it operates, the Group contributed to the global response to the pandemic by producing, for example, more of its Altuglas® acrylic sheets, which are used on a daily basis in hospitals and public spaces, its molecular sieves, which are fitted to the respirators used for patients in respiratory distress, and its high-performance polymers, which are used to produce respirator parts and protective visors.

The Group also set up pilot facilities to manufacture alcohol-based solutions and made donations of these products in many countries. Close to 100 tonnes of hand sanitizer were donated to healthcare facilities by Arkema sites in the United States, Australia, China and France. Germany, China and Brazil also contributed by donating products that are used to produce hand sanitizer.

In addition, Arkema Mexico supplied transparent acrylic sheets to hospitals near its sites.

In India, Arkema provided support to 1,500 families in villages by distributing close to 10 tonnes of rice.

Education and workforce integration

Determined to support education right from the start of the Common Ground® initiative, Arkema created a fund for education on its 10th anniversary, in line with its CSR commitments. 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 its creation, 48 educational projects carried out by non-profit organizations have been selected for sponsorship in 15 countries. The employees sponsoring these projects come from ten of the Group's host countries.

Around the world, the Group gives priority attention to strengthening its ties with schools and universities.

In France, the Group has been a sponsor of the CGénial Foundation's program to promote science among middle and high school students since 2016 and provides its support to spotlight science and technical-related disciplines and careers. The aim is to build bridges between business and academia by taking part in the Foundation's flagship programs. In 2020, despite the Covid-19 pandemic, more than 400 middle and high school students have benefited from the experience of Arkema's volunteer speakers through presentations in classrooms or online. However, tours of plants and research centers planned as part of the Company Teachers program could not take place and were postponed until 2021.

Other recurring educational programs such as Arkema ChemArt Green Innovation Class in China and the Science Teacher Program in the United States could not be deployed in 2020 due to the health crisis.

In addition to educational initiatives, the Group also provides its support to cultural projects.

In France, Arkema has been a patron of the *Théâtre des Champs-Élysées* in Paris since 2017, and in 2019 furthered its involvement by supporting the theater's youth program. This initiative aims to provide disadvantaged children aged 6 to 12 with greater access to music and opera and is aligned with Arkema's focus on education as well as youth inclusion and with the values of solidarity and accountability championed by the Group. Thanks to this initiative, 12,000 children, including 500 from schools in the disadvantaged neighborhoods of Colombes, were able to experience opera in 2020.

Diversity and social inclusion

In keeping with its internal policy of promoting gender diversity and equal opportunity, Arkema signed a three-year deal with the French Football Federation in 2019 to become the main partner of the division 1 Women's Football League in France, now known as *D1 Arkema*. This commitment is a natural extension of Arkema's sponsorship of the Women's World Cup France 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. This support for women's soccer has been extended outside France through local actions with amateur clubs near our sites, for example in the United States where Arkema works with a team of young women in New York.

The Group has also become a partner of Sport dans la Ville, a French non-profit that runs the "*L dans la Ville*" program, which is designed to help girls from disadvantaged neighborhoods find their place in society, in particular through sports and cultural activities. The program offers specific opportunities (sports, cultural activities, visits to companies, training workshops, etc.) to more than 1,000 girls to give them the same chance at success as boys. Initiatives are rolled out locally by the Group's various sites in France.

Bostik UK and its customer partner Ontex, an international producer of personal hygiene products, have donated more than one million feminine hygiene products to combat menstrual insecurity and support the education of girls in Zambia.

Environment and biodiversity

The Group is committed to protecting the environment and preserving biodiversity, above and beyond its regulatory obligations, and carries out a diverse array of initiatives worldwide. Participating in community awareness campaigns on waste management and recycling, planting trees, installing beehives or birdhouses, and rehabilitating wastelands both on and off Group sites are just some examples of the actions taken to protect the environment.

The Kerteh facility in Malaysia continued to take environmental action in 2020. During an open day organized by the regional WWF office and CIMB Bank, Arkema teams educated local communities about electronic waste collection with the help of students from Terengganu Polytechnic School. The initiative is part of the Malaysian government's Electrical and Electronic Waste Collection program.

Health

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 2020, non-profit Soleil d'Or, a partner of Secours Populaire Français, continued to provide aid to communities in the Caribbean affected by Hurricane Dorian in September 2019. As a result, close to one hundred kits have been distributed in the Bahamas, Dominica and Guadeloupe.

In China, with the support of its subsidiary ArrMaz, Arkema launched the Clean Water Project in 2020. The aim of the project is to provide drinking water to children at primary schools located in priority regions in Yunnan Province. Thanks to more than €50,000 in funding from the Group, Chinese NGO One Foundation was able to distribute five water filtration units in 2020 and will provide five more in 2021. In a region where tap water is unsafe and bottled water is not a financially viable option, these filtration units improve the living standards of both the children and their teachers.

Arkema also stepped up its commitment to health during the year by supporting non-profit Ruban Rose during breast cancer awareness month, alongside its partner the French Football Federation. The 12 D1 Arkema clubs organized various events during October 2020 to raise public awareness of this health issue. The Group pledged to donate €100 for every goal scored during D1 matches throughout the month, resulting in a total donation of €10,000.

Employee giving: participatory sponsorship

In 2018, Arkema introduced a "salary rounding" system in France. This participatory sponsorship system proposed by solidarity economy company MicroDon allows employees to donate the cents from their monthly salary, with Arkema donating the same amount as its employees. Over the past three years, more than €80,000 has been raised for the six non-profit organizations selected, which take action in areas that are aligned with the Group's CSR policy.

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 have been used to design and improve the performance of a Multi50 trimaran and a Mini 6.50 monohull. Further high-performance solutions developed by Arkema have been used in the construction of the Arkema 4 next-generation Multi50 trimaran, which began in 2018 and was completed in mid-2020.

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. This gives employees and their families, students from partner schools, customers and technical partners the opportunity to discover and discuss the direct ties between innovation and performance that exist thanks to Arkema's Specialty 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 social responsibility policy in favor of sustainable development.

Reporting scope and period

The reporting scopes for employee and environmental data are 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 and L. 22-10-36 of the French Commercial Code, as amended and created by French Law no. 2020-1142 of 16 September 2020, 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 articles L. 225-102-1 and L. 22-10-36, 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 GRI Guidelines. The GRI content index 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 active 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 2020. On this basis, the scope covered 100% of the Group's industrial operations in 2020. Given its contribution to the climate, American Acryl's Bayport facility, 50% owned by the Group, has been included in the scope of the greenhouse gas emissions strategic indicator since 2019. Scope 1 and 2 emissions from previous years have been recalculated to take account of this integration. In addition, since 2019, when the new SBT climate target was set, the Group has included all of its sites (industrial sites operated by the Group or by its

majority-owned subsidiaries, head offices and research and development centers) in calculating its carbon footprint (Scope 1 + ODS, Scope 2, Scope 3).

The scope of consolidation for energy reporting covers all of the sites operated by the Group or by majority-owned subsidiaries, including plants and research and development centers with an operating permit as at 31 December 2020. On this basis, the scope covered 100% of the Group's industrial operations in 2020.

Operations sold or discontinued in 2020 were removed from the scope of reporting for the year but remain in prior-year data.

Operations acquired in 2020 are included in 2020 reporting for all of their 2020 activities, except for the activities of LIP, Fixatti and Ideal Work.

Operations that started up in 2020 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 2019 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 2020 are not included in the scope of EFPI reporting for 2020, but are still included for previous years.

Operations started up in 2019 will be included in the EFPI reporting in 2021 compared with their 2020 performance.

Operations acquired in 2020 will be included in the 2022 scope of EFPI reporting for all of their 2022 activities, compared with their 2021 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 compiled by the proprietary reporting of Environmental and Energy Data (REED) system, which is accessible worldwide via the web platform of a service provider;
- are entered by the reporting units and validated at corporate level; and
- cover all of the production facilities operated by the Group or by majority-owned subsidiaries, head offices and research and development centers. The accident figures for newly acquired sites are integrated into the TRIR and LTIR indicators within three years. The LIP, Fixatti and Ideal Work sites are not included in accident safety reporting (see section 4.5.2.4 of this chapter). New sites are included in the calculation of the peer observation indicator within three years of their acquisition or start-up date.

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 "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.

"SBT" setting method for the target to reduce GHG emissions

Targets adopted by companies to reduce greenhouse gas (GHG) emissions are considered "science-based" if they are in line with what the latest climate science says is necessary to meet the goals of the Paris Agreement – to limit global warming to well below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C.

The methodology is based on a breakdown over time of the carbon budget in choosing a global GHG emissions scenario adapted to a trajectory well below 2°C (2018 report of the Intergovernmental Panel on Climate Change, or IPCC). Next, an allocation mechanism is applied taking the approach of a contraction of absolute emissions, in line with Science Based Targets recommendations and based on a 41% to 72% reduction in GHG emissions between 2010 and 2050. For the Group, this comes out to an annual reduction in GHG emissions of 2.5% for Scopes 1 and 2.

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 (NH₃) and nitrogen oxide (NO_x) emissions converted into tonnes of sulfur dioxide (SO₂) 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 concern 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, while HCFC emissions are those targeted by the Montreal Protocol.

Their impact is calculated in equivalent tonnes of carbon dioxide (t CO₂ eq.).

In this report, 2020 emissions have been calculated using the Global Warming Potential values published in 2007 by the Intergovernmental Panel on Climate Change (IPCC).

For the GHG emissions produced by American Acryl's Bayport facility, the estimate is based on the net consumption of fuel gas reported in REED, this being the site's sole combustion activity. The readings are compared with those of prior years with a good degree of reliability (data available from 2007 to 2010), in proportion to the quantity of acrylic acid produced. For process-related emissions, estimates are made based on past data in proportion to the production of acrylic acid. Since assessments have been conducted, the most penalizing data have systematically been used.

Indirect greenhouse gas (GHG) emissions

For the purposes of this report, indirect Scope 2 CO₂ emissions were calculated using electricity and steam consumption and emission factors in tonnes of CO₂ equivalent per input unit (MWh or 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-2018 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 CO₂ 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 11 categories. A detailed explanation of the calculation methodology is available to stakeholders upon request.

- **Category 1 – Purchased goods and services:** emissions are estimated based on purchases of raw materials, industrial gas and packaging in 2020. The calculation is first performed on the basis of purchases representing at least 80% of the total volume and by applying an emission factor specific to each chemical (in CO₂ equivalent per tonne). The emissions representing the remaining 20% of volume are calculated by applying an emission factor of 1.8 tonnes of CO₂ eq. per tonne, which is the factor applied to organic chemicals in the Ecoinvent database (version 3.5). The emission factors used are those applied by professional organizations such as Plastics Europe, the Ecoinvent database (version 3.5), or the Base Carbone®.
- **Category 2 – Capital goods:** emissions are estimated based on the amount of capital expenditure split into 14 categories (Development, R&D, Maintenance, ArkEnergy, etc.). An emission factor from the 2019 Carbon Base is assigned to each investment category (in kg CO₂ eq./€k).
- **Category 3 – Fuels and energy-related activities:** emissions are estimated applying the default rule set out in the WBCSD guide. These emissions include (i) losses expressed in CO₂ 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 factors 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 4 – Upstream transportation and distribution:** estimated emissions are based on the list of main raw materials representing at least 80% of purchasing volumes (see Scope 3 – category 1), an average journey of 1,000km by truck and a factor of average emissions for road transport (in kg of CO₂ per t.km). For the main raw material, the real mode of transportation was used, without modifying the average journey assumption of

(1) UK department for Business, Energy and Industrial Strategy.

1,000km. The resulting emissions are then extrapolated in proportion to the total volume of raw materials transported. The average emission factors by mode of transportation are the same as those used to estimate category 9 emissions.

- Category 5 – Waste generated in operations: 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 Ecolnvent base (version 3.5) 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 97% 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. In 2020, the scope was extended to include train travel in Europe and emissions from hotel accommodation and long-term vehicle rentals.
- Category 7 – Employee commuting: emissions were estimated using the least favorable scenario, assuming that all 20,576 employees use their own cars to get to work, traveling an average distance of 33km per day in France⁽¹⁾, 26km in the United States⁽²⁾, and 50km in other countries. As the vast majority of employees from head offices, other office buildings and research centers were teleworking in 2020, a corrective factor was applied to employee commuting. The emission factors applied correspond to the average CO₂ emissions per kilometer by vehicle type and fuel type given in DEFRA database (2019 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 are not directly available, estimates are made working from the energy consumption ratio (all usages) per employee and by type of establishment, mainly offices and research centers. 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 more than 99% of consolidated shipments. The 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. Since 2019, the calculation has been made by EcoTransIT, whose methodology

(<https://www.ecotransit.org/methodology.en.html>) is based on the EN 16258 standard (Methodology for calculation and declaration of energy consumption and GHG emissions of transport services [freight and passengers]). In particular, the standard emission factors for road transport are based on the EURO I to VI standards in Europe, the 1994 to 2010 EPA standards in the USA and the 1994 to 2009 JP standards in Japan. For maritime transport, the method is based on the data and methodology developed by the Clean Cargo initiative (<https://www.clean-cargo.org/>). This method covers 94% of transport. For each line that EcoTransIT was unable to process, an average distance was applied for each mode of transportation, as well as an average emission factor for the quantity transported. The total was then added to the emissions previously estimated by EcoTransIT. This estimate for emissions not taken into account by EcoTransIT (i.e., 6% of transportation) was less than 4% of emissions in the category for this reporting year. The reporting period runs from 1 October to 30 September of the following year. This new automatic calculation methodology allows for better use of the data available in the Group's various information systems, an extension of the reporting scope, and greater reliability in terms of distances declared and emission factors.

- Category 12 – End-of-life treatment of sold products: the products sold by the Group have been classified into 15 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, for which a reliable methodology has not been identified. For Bostik products, a special scenario for end-of-life treatment was applied to account for the nature of these products and their applications. In 2020, the end of life of the Group's packaging was included in this category, and a specific emission factor was applied based on the type of packaging (metal, wood, glass, paper/cardboard, plastic, etc.).

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 average number of days lost per injury mentioned in section 4.3.2.1 is estimated in mid-January for the reporting on year N. This figure may be re-evaluated in N+1 depending on the actual average number of days lost. In 2020, accident rates do not include the LIP, Fixatti or Ideal Work activities, acquired in 2020.

(1) 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).

(2) Bureau of Transportation Statistics.

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 these 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 (PSE) rate, 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. Three protocols are used, depending on the facility's size and specific needs: full AIMS, which is combined with ISO certifications, for the largest sites or sites that present major risks, simplified AIMS for smaller sites with low risks, and light AIMS, for very small sites with low risks and facilities that have been recently acquired.

4.5.3 Methodological note on employee, social and R&D information/indicators

4.5.3.1 Social, employee and R&D reporting tools and scope

Employee data are taken from several different reporting processes.

The workforce 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, ArrMaz, Bostik, Coatex 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 91% 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 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 registration 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 reporting purposes, 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.

To remain consistent with financial reporting, Australia and New Zealand are included under Asia, rather than "Rest of the world". Employee data for 2018 and 2019 were restated for comparisons over the three-year period.

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.

Recruitment

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.

Average employee compensation for men and women covers France, China and the United States, which together account for 66% of the Group's workforce. Comparisons are against the base salary.

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.

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

Regulations do not allow the nationality of employees to be entered in information systems in all the countries where the Group operates. This is notably the case in the United States. In the absence of data on nationality, by convention, it has been assumed that the employees exercising their activity in these countries are not French nationals. This statement does not apply to expatriate employees.

4.5.3.4 Details on R&D and sustainable development information and indicators

ImpACT+ solutions

Percentage of third-party sales of ImpACT+ solutions. Solutions in the ImpACT+ category include those that, on the basis of a decision tree reflecting the three sets of criteria mentioned in section 4.2.4 of this chapter, simultaneously (i) meet the basic requirements, (ii) are aligned with regulatory trends and market expectations, (iii) have a positive impact compared with the market standard on at least one of the SDGs, and (iv) do not generate a significant negative impact on the other SDGs.

Sustainable development patents

Number of original patent applications filed in the reporting year by the Group in response to sustainable development issues and related to at least one UN Sustainable Development Goal.

Percentage of sales from products made from renewable raw materials

Sales derived from renewable raw materials correspond to sales of products that use renewable raw materials in the proportion of more than 20%. Renewable content is calculated by ascertaining the proportion of raw materials (carbon and heteroatoms) of renewable origin. A renewable raw material is understood to be either bio-sourced (i.e., from biomass, plant or animal), or certified renewable by a mass balance approach. For a large number of product lines, the most penalizing data have been systematically used.

R&D expenditure

R&D expenditure is expressed as a percentage of consolidated revenue for the year.

4.5.3.5 Details on social information and indicators

Percentage of purchasing spend covered by a CSR assessment

Percentage of purchasing spend from relevant suppliers covered by a TFS assessment. Relevant suppliers are recurrent suppliers (purchases over at least three consecutive years) representing 80% of the purchasing spend for each Procurement department (Goods and Services, Logistics, Raw Materials and Energy).



4.5.4 Indicators ⁽¹⁾

		2020	2019	2018
SUSTAINABLE SOLUTIONS				
Innovation				
Percentage of ImpACT+ sales ⁽²⁾	%	50	46	43
Number of patent applications filed during the year relating to sustainable development		158	149	154
R&D expenditure as a percentage of consolidated revenues	%	3.1	2.8	2.7
Management of the solutions portfolio				
Percentage of sales from products made from renewable raw materials	%	10	9	9
Percentage of sales volume covered by a full life-cycle assessment	%	22	22	20
Product stewardship				
Number of substances with REACH registration		425	425	425
RESPONSIBLE MANUFACTURER				
Safety, environment and maintenance expenditure	€m	270	279	270
Management system				
Percentage of sites audited according to Arkema Integrated Management System (AIMS) standards	%	82	80	74
Percentage of ISO 45001-certified sites	%	57	57	47
Percentage of employees covered by ISO 45001 certification	%	48	47	47
Percentage of ISO 45001-certified sites in Europe	%	56	59	53
Percentage of ISO 45001-certified sites in the Americas	%	52	47	48
Percentage of ISO 45001-certified sites in Asia	%	65	65	58
Percentage of ISO 14001-certified sites	%	54	53	48
Percentage of ISO 14001-certified sites in Europe	%	64	65	60
Percentage of ISO 14001-certified sites in Asia	%	76	76	63
Percentage of RCMS-certified sites in the Americas	%	18	18	17
Safety				
Total recordable injury rate (TRIR)	per million hours worked	1.0	1.4	1.3
Lost-time injury rate (LTIR)	per million hours worked	0.7	0.8 ⁽³⁾	0.8
Percentage of sites practicing peer observation	%	63	62	64
Process safety event rate (PSER)	per million hours worked	4.0	3.7	4.4
Environment				
Greenhouse gas (GHG) emissions ⁽⁴⁾				
Direct greenhouse gas emissions corresponding to the Kyoto Protocol	kt CO ₂ eq.	2,268	2,698	2,807
• of which CO ₂	kt CO ₂	1,495	1,490	1,567
• of which HFC	kt CO ₂ eq.	742	1,174	1,210
• of which others	kt CO ₂ eq.	31	34	30

		2020	2019	2018
Direct greenhouse gas emissions corresponding to the Kyoto Protocol, by region				
• Europe	%	34	30	31
• Americas	%	53	56	55
• Rest of the world	%	13	15	14
Direct greenhouse gas emissions corresponding to the Montreal Protocol	kt CO ₂ eq.	257	247	277
Scope 2 indirect greenhouse gas emissions of CO ₂	kt	1,103	1,142	1,183
• of which in Europe	kt	245	290	291
• of which in the Americas	kt	352	401	401
• of which in the Rest of the world	kt	507	451	491
Climate indicator: Scope 1 and Scope 2 GHG emissions as defined in the Kyoto Protocol + substances listed in the Montreal Protocol	kt	3,628	4,087	4,267
Scope 3 indirect greenhouse gas emissions of CO ₂ eq. (to within 10%) ⁽⁵⁾	Mt	11.19	12.56	9.56
Adapting to the consequences of climate change				
Number of sites exposed to a severe risk of storms and/or flooding		34	25	22
Air emissions				
Acidifying substances	t SO ₂ eq.	2,220	2,620	3,040
Carbon monoxide	t	906	950	940
Volatile organic compounds (VOCs)	t	3,426	3,810	4,150
Volatile organic compound (VOC) EFPI		0.58	0.60	0.62
Dust	t	217	203	235
Effluent releases				
Chemical oxygen demand (COD)	t O ₂	1,640	1,950	2,170
Chemical oxygen demand (COD) EFPI		0.45	0.50	0.59
Suspended solids	t	500	571	535
Waste				
Total hazardous waste	kt	185	178	187
Hazardous waste recycled into materials	%	11	14	15
Hazardous waste burned as fuel	%	32	49	48
Non-recycled hazardous waste	kt	105	95 ⁽⁶⁾	101 ⁽⁶⁾
• of which landfilled	kt	2.5	3.8	4.0
Total non-hazardous waste	kt	209	208 ⁽⁷⁾	225 ⁽⁷⁾
Recycled non-hazardous waste	kt	57	62 ⁽⁷⁾	66 ⁽⁷⁾
Non-recycled non-hazardous waste	kt	152	146	159
• of which landfilled	kt	26	26	37
Resources				
Total water withdrawn	millions of cu.m	114	116 ⁽⁸⁾	119
Water withdrawals as a percentage of Group sales	cu.m/€k	14.5	13.3	13.5
Net energy purchases	TWh	7.84	8.05	8.07
• of which in Europe	TWh	3.97	4.26	4.33
• of which in America	TWh	2.69	2.57	2.53
• of which in the Rest of the world	TWh	1.17	1.22	1.21
Energy EFPI		0.91	0.91	0.88
Net energy purchases by type				
• fuel	TWh	4.29	3.98	4.06
• electricity	TWh	2.57	2.71	2.72
• steam	TWh	0.98	1.36	1.29



		2020	2019	2018
Natural gas in net purchases of fuels	%	98	98	97
Low-carbon electricity in net energy purchases	%	22	22	22
Number of Arkenergy investments		66	51	50
• of which in Europe		42	28	26
• of which in America		6	12	14
• of which in the Rest of the world		18	11	10
Number of ISO 50001-certified sites		34	33	30
OPEN DIALOGUE				
Employment				
Headcount				
Total headcount at 31 December		20,576	20,507	20,010
• of which permanent employees		19,692	19,783	19,301
• of which fixed-term employees		884	724	709
Total headcount at 31 December by geographical area				
• France		7,231	7,309	7,193
• Europe (excluding France)		4,073	3,899	3,904
• North America		4,004	4,074	3,880
• Asia		4,549	4,521	4,408
• Rest of the world		719	704	625
Managers in the total headcount	%	28.1	27.9	27.3
Diversity				
Women in the total headcount	%	25.6	25.3	25.3
Women in the total headcount by region				
• France	%	27.5	27.2	26.9
• Europe (excluding France)	%	25.3	25.7	25.2
• North America	%	23.2	22.7	22.9
• Asia	%	25.5	25.2	25.5
• Rest of the world	%	21.4	20.6	20.2
Percentage of women managers (all levels)	%	30.1	29.9	29.6
Percentage of women in executive positions (Hay grade 17 or higher)	%	16.4	16.7	13.9
Percentage of women in senior management and executive positions (Hay grade 15 or higher)	%	23	23	21
Non-French nationals in senior management and executive positions (Hay grade 15 or higher)	%	41	40	39
Percentage of women who hold performance shares	%	30	28	28
Percentage of women in lower management (France, United States, China)	%	37		
Percentage of women in middle management (France, United States, China)	%	33		
Percentage of women in business-related positions (France, United States, China)	%	25		
Equal pay between men and women (women's average base salary/men's average base salary)				
• Lower management	%	95		
• Middle management	%	92		
• Senior management and executive positions (excluding Executive Committee)	%	95		
Recruitment				
Recruitments during the year		1,310	1,593	1,833
• France		322	366	393
• Europe (excluding France)		262	260	252

		2020	2019	2018
• North America		329	437	528
• Asia		326	431	565
• Rest of the world		71	99	95
Manager recruitments		338	494	497
Non-manager recruitments		972	1,099	1,336
Women recruitments	%	28.9	28.2	28.2
New hires aged 50 and over	%	10.5	10.3	9.5
New hires aged under 30	%	35.4	34.4	37.6
Departures				
Departures during the year		1,620	1,741	1,852
• of which resignations		693	945	1,004
• of which dismissals		331	342	322
• of which retirement		310	285	330
• of which following a divestment/merger		109	27	0
• of which other reasons		114	142	196
Work organization				
Full-time employees	%	96.2	96.3	96.3
Part-time employees	%	3.8	3.8	3.7
Employees who telework	%	16.5	13.8	nd
Absenteeism				
Overall absenteeism rate	%	5.1	4.2	3.9
Absenteeism rate on medical grounds	%	3.3	2.8	2.8
Training				
Number of training hours	thousands	346	463	456
Average number of training hours per employee		18	25	25
Average number of training hours per manager		16	24	nd
Average number of training hours per non-manager		20	25	nd
Number of employees who received training, excluding e-learning		15,105	15,997	17,111
Number of employees who took an e-learning course		10,247	9,517	9,403 ⁽⁹⁾
Number of safety training hours	thousands	163	182	193
Number of safety training hours per employee trained		14	13	14
Number of employees who received safety training (excluding e-learning)		11,879	14,142	13,588
Number of employees who took safety-related e-learning courses		7,852	6,684	6,863 ⁽⁹⁾
Number of environment-related training hours		7,571	10,210	15,795
Number of environment-related training hours per employee trained		2	2	4
Number of employees who received environment-related training (excluding e-learning)		3,217	4,686	3,919
Number of employees who took environment-related e-learning courses		5,593	4,863	
Breakdown of training hours by topic:				
• Technical expertise	thousands	133	203	nd
• HSEQ	thousands	181	196	nd
• IT/digital technology	thousands	15	19	nd
• Management	thousands	17	45	nd
Percentage of apprenticeships (Arkema France)	%	4.2	4.4	4.1
Proportion of Group employees benefiting from annual performance reviews	%	100	99	99
Health and welfare				
Percentage of employees benefiting from regular medical check-ups	%	95	94	93



		2020	2019	2018
Occupational illness frequency rate (OIFR)	per million hours worked	1.0	1.0	1.9
Employees benefiting from supplementary disability cover	%	90	90	90
Employees benefiting from supplementary life cover	%	95	95	92
Employees covered by death benefits representing at least 18 months' salary	%	85	84	82
Compensation				
Employees benefiting from minimum compensation guarantees	%	100	100	100
Employees benefiting from collective variable compensation components	%	73	73	68
Employees benefiting from individual variable compensation components	%	37	36	35
Representation				
Percentage of employees benefiting from personnel representation and/or trade union representation	%	90	91	90
Societal				
Number of Common Ground® initiatives		642	990	1,064
Group industrial sites taking part in Common Ground®	%	78	78	84
European industrial sites taking part in Common Ground®	%	80	78	73
North American industrial sites taking part in Common Ground®	%	80	76	73
Asian industrial sites taking part in Common Ground®	%	82	95	69
Sustainable procurement				
Percentage of purchasing spend from relevant suppliers covered by a TfS assessment	%	68	68	nd

(1) Indicators are defined in detail in the methodological note in sections 4.5.2 and 4.5.3 of this chapter.

(2) The percentage of sales contributing significantly to the United Nations SDGs (ImpACT+) was calculated on the basis of an assessment of 72% of the Group's third-party sales in 2020 and 44% in 2018 and 2019.

(3) The 2019 LTIR, announced in the 2019 Universal Registration Document as 0.7, was updated to include an injury that had not initially been taken into account.

(4) Since 2019, GHG emissions have included those of American Acryl's Bayport facility. 2018 emissions have been recalculated to take account of this consolidation (see section 4.5.2.1 of this chapter).

(5) The Scope 3 categories covered by this estimate are detailed in section 4.3.3.2.3 of this chapter.

(6) The breakdown between recycled and non-recycled hazardous waste in 2019 and 2018 was corrected following a historical classification error.

(7) The 2019 and 2018 figures for recycled non-hazardous waste have been corrected, after a co-product was erroneously included in their calculation.

(8) Following a correction of the 2019 metering methodology at the Pierre-Bénite site, the 2019 value communicated in the 2019 Universal Registration Document was reassessed by 2.8 million cu.m (corresponding to 0.32 cu.m/€k), consistent with the metering methodology of the other years.

(9) This amount corrects the figure indicated in the 2018 reference document following the detection of double counting of participants in certain e-learning modules.

4.5.5 GRI content index

Declaration of GRI compliance

Arkema Group follows the GRI Sustainability Reporting Standards and applies their principles (GRI 101). The 2020 report has been prepared in accordance with the GRI Standards: Core option.

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 GRI content index below presents the general and specific items of information, in accordance with their materiality for the Group.

GRI standard	Disclosure	Description	Location or omission
GRI 101: Foundation – 2016			
GRI 102: General disclosures – 2016			
Organizational profile			
	102-1	Name of the organization	6.1.1 – Information about the Company Cover
	102-2	Activities, brands, products and services	1.2 – Business overview
	102-3	Location of headquarters	6.1.1 – Information about the Company 5.4.2 – Parent company financial statements/SUBSIDIARIES AND INVESTMENTS
	102-4	Location of operations	6.1.2 – Subsidiaries and shareholdings of the Company 5.4.2 – Parent company financial statements/SUBSIDIARIES AND INVESTMENTS
	102-5	Ownership and legal form	6.1.1 – Information about the Company 5.4.2 – Parent company financial statements/SUBSIDIARIES AND INVESTMENTS
	102-6	Markets served	PROFILE 1.2 – Business overview
	102-7	Scale of the organization	PROFILE KEY FIGURES OUR BUSINESS MODEL 1.2 – Business overview 6.1.1 – Information about the Company
	102-8	Information on employees and other workers	4.4.1 – Employee information
	102-9	Supply chain	1.4 – Material contracts 4.1.7 – Stakeholders and materiality assessment 4.2.1 – Management of sustainable solutions portfolio 4.2.4 – Management of the solutions portfolio
	102-10	Significant changes to the organization and its supply chain	2.2 – Global internal control and risk management procedures
	102-11	Precautionary principle or approach	2.1 – Main risks
	102-12	External initiatives	4.1.1 – CSR policy 4.1.8 – CSR key performance indicators
	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
	102-15	Key impacts, risks, and opportunities	AMBITION 4.1.3 – Description of key impacts, risks, and opportunities TABLE OF THE GROUP'S CONTRIBUTION TO THE UNITED NATIONS SDGS 4.1.5 – Duty of care plan





CORPORATE SOCIAL RESPONSIBILITY

Reporting methodology

GRI standard	Disclosure	Description	Location or omission
Ethics and integrity			
	102-16	Values, principles, standards and norms of behavior	4.4.2 – Compliance and ethics 4.2.5.4 – Animal welfare
Governance			
	102-18	Governance structure	4.1.2 – CSR governance 3.2 – Composition of administrative and management bodies
Stakeholder engagement			
	102-40	List of stakeholder groups	4.1.7 – Stakeholders and materiality assessment/ OPEN DIALOGUE
	102-41	Collective bargaining agreements	4.4.1.7 – Active social dialogue with employee representatives
	102-42	Identifying and selecting stakeholders	4.1.7 – Stakeholders and materiality assessment/ OPEN DIALOGUE
	102-43	Approach to stakeholder engagement	4.1.7 – Stakeholders and materiality assessment
	102-44	Key topics and concerns raised	4.1.7 – Stakeholders and materiality assessment/ TABLE OF PRIORITY MATTERS
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 data 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	4.1.7 – Stakeholders and materiality assessment
	102-47	List of material topics	4.1.7 – Stakeholders and materiality assessment
	102-48	Restatements of information	1.2.1 – Adhesive Solutions 1.2.2 – Advanced Materials 1.2.3 – Coating Solutions 1.2.4 – Intermediates
	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	4.5.5 – GRI content index
	102-55	GRI content index	4.5.5 – GRI content index
	102-56	External assurance	4.5.6 – Independent third-party opinion pursuant to articles L. 225-102-1 and L. 22-10-36 of the French Commercial Code
Specific items			
GRI 200: Economic standards			
GRI 103: Management approach – 2016	103-1	Explanation of the material topic and its boundary	4.1.1 – CSR policy 4.1.7 – Stakeholders and materiality assessment
	103-2	The management approach and its components	4.4 – Open dialogue and close relations with stakeholders
	103-3	Evaluation of the management approach	4.5.4 – Indicators

GRI standard	Disclosure	Description	Location or omission
Economic performance			
GRI 201: Economic performance – 2016	201-1	Direct economic value generated and distributed	4.4.6.2 – Corporate citizenship
	201-2	Financial implications and other risks and opportunities due to climate change	4.2.2 – Innovation
	201-4	Financial assistance received from government	5.3.3 – Notes to the consolidated financial statements at 31 December 2020/Note 8/8.2 – Other intangible assets/Capitalized research and development costs
Market presence			
GRI 202: Market presence – 2016	202-2	Proportion of senior management hired from the local community	4.4.1.6 – Diversity, equal opportunity and equal treatment
Indirect economic impacts			
GRI 203: Indirect economic impacts – 2016	203-1	Infrastructure investments and services supported	4.4.6.1 – Supporting local communities through innovation
	203-2	Significant indirect economic impacts	4.4.6.2 – Corporate citizenship
Procurement practices			
GRI 204: Procurement practices – 2016	204-1	Proportion of spending on local suppliers	4.1.5 – Duty of care plan 4.4.4 – Suppliers and subcontractors
Anti-corruption			
GRI 205: Anti-corruption – 2016	205-1	Operations assessed for risks related to corruption	4.1.5 – Duty of care plan 4.4.2 – Compliance and ethics
	205-2	Communication and training about anti-corruption policies and procedures	4.4.2 – Compliance and ethics
	205-3	Confirmed incidents of corruption and actions taken	4.4.2 – Compliance and ethics
Anti-competitive behavior			
GRI 206: Anti-competitive behavior – 2016	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	4.4.2 – Compliance and ethics
Taxes			
GRI 207: Tax – 2019	207-1	Approach to tax	4.4.2.6 – Tax policy
	207-2	Tax governance, control and risk management	4.4.2.6 – Tax policy
GRI 300: Environmental standards			
GRI 103: Management approach – 2016	103-1	Explanation of the material topic and its boundary	4.1.7 – Stakeholders and materiality assessment
	103-2	The management approach and its components	4.3.3.1 – Environmental management
	103-3	Evaluation of the management approach	4.5.4 – Indicators
Materials			
GRI 301: Materials – 2016	301-1	Materials used by weight or volume	4.3.3.3.3 – Raw materials use
	301-2	Recycled input materials used	4.3.3.3.4 – Circular economy and industrial operations
	301-3	Reclaimed products and their packaging materials	4.3.3.3.4 – Circular economy and industrial operations
Energy			
GRI 302: Energy – 2016	302-1	Energy consumption within the organization	4.3.3.3.1 – Energy use
	302-3	Energy intensity	4.3.3.2.2 – Energy
	302-4	Reduction of energy consumption	4.3.3.2.2 – Energy
	302-5	Reductions in energy requirements of products and services	4.3.3.2.2 – Energy



GRI standard	Disclosure	Description	Location or omission
Water and effluents			
GRI 303: Water and effluents – 2018	303-1	Interactions with water as a shared resource	4.3.3.3.2 – Water use
	303-2	Management of water discharge-related impacts	4.3.3.4.2 – Emissions into air, water and soil
	303-3	Water withdrawal	4.3.3.3.2 – Water use
	303-4	Water discharge	4.3.3.4.2 – Emissions into air, water and soil
	303-5	Water consumption	4.3.3.3.2 – Water use
Biodiversity			
GRI 304: Biodiversity – 2016	304-2	Significant impacts of activities, products and services on biodiversity	4.3.3.4 – Protecting biodiversity
Emissions			
GRI 305: Emissions – 2016	305-1	Direct (Scope 1) GHG emissions	4.3.3.2.1 – Scopes 1 and 2 greenhouse gas emissions
	305-2	Energy indirect (Scope 2) GHG emissions	4.3.3.2.1 – Scopes 1 and 2 greenhouse gas emissions
	305-3	Other indirect (Scope 3) GHG emissions	4.3.3.2.3 – Scope 3 greenhouse gas emissions
	305-4	GHG emissions intensity	4.3.3.1 – Environmental management 4.3.3.2.1 – Scopes 1 and 2 greenhouse gas emissions
	305-5	Reduction of GHG emissions	4.3.1 – Health, safety and environmental management
	305-7	Nitrogen oxides (NOx), sulfur oxides (SOx) and other significant air emissions	4.3.3.4.2 – Emissions into air, water and soil
Waste			
GRI 306: Waste – 2020	306-1	Waste generation and significant waste-related impacts	4.2.3 – Circular economy 4.3.3.3.4 – Circular economy and industrial operations
	306-2	Management of significant waste-related impacts	4.2.3 – Circular economy 4.3.3.4.2 – Emissions into air, water and soil
	306-3	Waste generated	4.3.3.3.4 – Circular economy and industrial operations
	306-4	Waste diverted from disposal	4.3.3.3.4 – Circular economy and industrial operations
	306-5	Waste directed to disposal	4.3.3.3.4 – Circular economy and industrial operations
Environmental compliance			
GRI 307: Environmental compliance – 2016	307-1	Non-compliance with environmental laws and regulations	4.3.1.2 – Management system and audits
Supplier environmental assessment			
GRI 308: Supplier environmental assessment – 2016	308-1	New suppliers that were screened using environmental criteria	4.4.4.4 – Assessment of suppliers and subcontractors
	308-2	Negative environmental impacts in the supply chain and actions taken	4.4.4.3 – Selection of suppliers and subcontractors
GRI 400: Social standards			
GRI 103: Management approach – 2016	103-1	Explanation of the material topic and its boundary	4.1.7 – Stakeholders and materiality assessment
	103-2	The management approach and its components	4.2 – Sustainable solutions 4.3 – Responsible manufacturer 4.4 – Open dialogue and close relations with stakeholders
	103-3	Evaluation of the management approach	4.5.4 – Indicators

GRI standard	Disclosure	Description	Location or omission
Employment			
GRI 401: Employment – 2016	401-1	New employee hires and employee turnover	4.4.1.1 – Talent management
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	4.4.1.2 – An agile and collaborative organization 4.4.1.5 – A motivating and competitive compensation system
Occupational health and safety			
GRI 403: Occupational health and safety – 2018	403-1	Occupational health and safety management system	4.3.1 – Health, safety and environmental management 4.3.2.2 – Employee health and safety
	403-2	Hazard identification, risk assessment and incident investigation	4.3.2 – Health and safety information
	403-3	Occupational health services	4.3.2.3 – Process safety
	403-4	Worker participation, consultation and communication on occupational health and safety	4.3.1.3 – Safety and environmental culture
	403-5	Worker training on occupational health and safety	4.3.1.3 – Safety and environmental culture
	403-6	Promotion of worker health	4.3.1.3 – Safety and environmental culture
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	4.3.2.1 – Safety management 4.4.1.4 – Employee engagement and wellbeing
	403-8	Workers covered by an occupational health and safety management system	4.3.2 – Health and safety information
	403-9	Work-related injuries	4.3.2 – Health and safety information
	403-10	Work-related ill-health	4.3.2.2.4 – Occupational illnesses
Training and education			
GRI 404: Training and education – 2016	404-1	Average hours of training per year per employee	4.4.1.3 – Personal development and training
	404-2	Programs for upgrading employee skills and transition assistance programs	4.4.1.3 – Personal development and training
	404-3	Percentage of employees receiving regular performance and career development reviews	4.4.1.3 – Personal development and training
Diversity and equal opportunities			
GRI 405: Diversity and equal opportunity – 2016	405-1	Diversity of governance bodies and employees	4.4.1.6 – Diversity, equal opportunity and equal treatment
	405-2	Ratio of basic salary and remuneration of women to men	4.4.1.6 – Diversity, equal opportunity and equal treatment – Diversity and equal treatment policy
Non-discrimination			
GRI 406: Non-discrimination – 2016	406-1	Incidents of discrimination and corrective actions taken	4.4.1.6 – Diversity, equal opportunity and equal treatment
Freedom of association and collective bargaining			
GRI 407: Freedom of association and collective bargaining – 2016	407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	4.4.1.7 – Active social dialogue with employee representatives
Child labor			
GRI 408: Child labor – 2016	408-1	Operations and suppliers at significant risk for incidents of child labor	4.4.3 – Human Rights





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GRI standard	Disclosure	Description	Location or omission
Forced or compulsory labor			
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
Human Rights assessment			
GRI 412: Human Rights assessment – 2016	412-1	Operations that have been subject to Human Rights reviews or impact assessments	4.4.2 – Compliance and ethics 4.4.3 – Human Rights
	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 413: Local communities – 2016	413-1	Operations with local community engagement, impact assessments, and development programs	4.4.6 – Corporate citizenship and philanthropy
Supplier social assessment			
GRI 414: Supplier social assessment – 2016	414-1	New suppliers that were screened using social criteria	4.4.4.4 – Assessment of suppliers and subcontractors
	414-2	Negative social impacts in the supply chain and actions taken	4.4.4.3 – Selection of suppliers and subcontractors
Public policy			
GRI 415: Public policy – 2016	415-1	Political contributions	4.4.5 – Institutional initiatives
Customer health and safety			
GRI 416: Customer health and safety – 2016	416-1	Assessment of the health and safety impacts of product and service categories	4.2 – Sustainable solutions
	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	4.2 – Sustainable solutions
Marketing and labeling			
GRI 417: Marketing and labeling – 2016	417-1	Requirements for product and service information and labeling	4.2.1 – Management of sustainable solutions
	417-2	Incidents of non-compliance concerning product and service information and labeling	4.2 – Sustainable solutions
	417-3	Incidents of non-compliance concerning marketing communications	4.2 – Sustainable solutions
Customer privacy			
GRI 418: Customer privacy – 2016	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	4.4.2.4 – Personal data protection
Socioeconomic compliance			
GRI 419: Socioeconomic compliance – 2016	419-1	Non-compliance with laws and regulations in the social and economic area	4.4.2 – Compliance and ethics

4.5.6 Independent third-party opinion pursuant to articles L. 225-102-1 and L. 22-10-36 of the French Commercial Code

Report by one of the statutory auditors, appointed as independent third party, on the consolidated non-financial statement

This is a free English translation 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 constructed in accordance with, French law and professional standards applicable in France.

For the year ended 31 December 2020

To the Annual General Meeting,

In our capacity as Statutory Auditor of your company (hereinafter the "entity") appointed as independent third party, and accredited 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 statement for the year ended 31 December 2020 (hereinafter the "Statement"), included in the entity's and the Group's Management Report pursuant to the requirements of articles L. 225-102-1, L. 22-10-36, R. 225-105 and R. 225-105-1 of the French Commercial Code (*Code de commerce*).

Responsibility of the entity

The Board of Directors is responsible for preparing the Statement, including a presentation of the business model, a description of the principal non-financial risks, a presentation of the policies implemented considering those risks and the outcomes of said policies, including key performance indicators.

The Statement has been prepared in accordance with the entity's procedures (hereinafter the "Guidelines"), the main elements of which are presented in the Statement and available upon request at the entity's head office.

Independence and quality control

Our independence is defined by the requirements of article L.822-11-3 of the French Commercial Code and the French Code of Ethics (*Code de déontologie*) of our profession. In addition, we have implemented a system of quality control including documented policies and procedures regarding compliance with applicable legal and regulatory requirements, the ethical requirements and French professional guidance.

Responsibility of the Statutory Auditors appointed as independent third party,

On the basis of our work, our responsibility is to provide a report expressing a limited assurance conclusion on:

- the compliance of the Statement with the requirements of article R. 225-105 of the French Commercial Code;
- the fairness of the information provided in accordance with article R.225-105 I, 3° and II of the French Commercial Code, i.e., the outcomes, including key performance indicators, and the measures implemented considering the principal risks (hereinafter the "Information").

However, it is not our responsibility to comment on the entity's compliance with other applicable legal and regulatory requirements, in particular the French duty of care law and anti-corruption and tax avoidance legislation, nor on the compliance of products and services with the applicable regulations.

Nature and scope of our work

The work described below was performed in accordance with the provisions of Article A.225-1 *et seq.* of the French Commercial Code, as well as with the professional guidance of the French Institute of Statutory Auditors (*Compagnie nationale des commissaires aux comptes* or CNCC) applicable to such engagements and with ISAE 3000⁽²⁾:

- We obtained an understanding of all the consolidated entities' activities, and the description of the principal risks associated;
- We assessed the suitability of the criteria of the Guidelines with respect to their relevance, completeness, reliability, neutrality and understandability, with due consideration of industry best practices, where appropriate;
- We verified that the Statement includes each category of social and environmental information set out in article L.225-102-1 III as well as information regarding compliance with human rights and anti-corruption and tax avoidance legislation set out in article L. 22-10-36, paragraph 2;

(1) Cofrac Inspection Accreditation, number 3-1049, scope available at www.cofrac.fr.

(2) ISAE 3000: international standard on assurance engagements other than audits or reviews of historical financial information.

- We verified that the Statement provides the information required under article R. 225-105 II of the French Commercial Code, where relevant with respect to the principal risks, and includes, where applicable, an explanation for the absence of the information required under article L. 225-102-1 III, paragraph 2 of the French Commercial Code;
- We verified that the Statement presents the business model and a description of principal risks associated with all the consolidated entities' activities, including where relevant and proportionate, the risks associated with their business relationships, their products or services, as well as their policies, measures and the outcomes thereof, including key performance indicators associated to the principal risks;
- We referred to documentary sources and conducted interviews to:
 - assess the process used to identify and confirm the principal risks as well as the consistency of the outcomes, including the key performance indicators used, with respect to the principal risks and the policies presented;
 - corroborate the qualitative information (measures and outcomes) that we considered to be the most important presented in Appendix. Concerning certain risks⁽¹⁾, our work was carried out on the consolidating entity, for the other risks, our work was carried out on the consolidating entity and on a selection of entities⁽²⁾.
- We verified that the Statement covers the scope of consolidation, i.e. all the consolidated entities in accordance with article L. 233-16 of the French Commercial Code within the limitations set out in the Statement;
- We obtained an understanding of internal control and risk management procedures the entity has put in place and assessed the data collection process to ensure the completeness and fairness of the Information;
- For the key performance indicators and other quantitative outcomes that we considered to be the most important presented in Appendix, we implemented:
 - analytical procedures to verify the proper consolidation of the data collected and the consistency of any changes in those data;
 - tests of details, using sampling techniques, in order to verify the proper application of the definitions and procedures and reconcile the data with the supporting documents. This work was carried out on a selection of contributing entities and covers between 17 % and 100 % of the consolidated data selected for these tests;
- We assessed the overall consistency of the Statement based on our knowledge of all the consolidated entities.

We believe that the work carried out, based on our professional judgment, is sufficient to provide a basis for our limited assurance conclusion; a higher level of assurance would have required us to carry out more extensive procedures.

Means and resources

Our work was carried out by a team of eight people between September 2020 and February 2021 and took a total of ten weeks.

We were assisted in our work by our specialists in sustainable development and corporate social responsibility. We conducted about twenty interviews with the people responsible for preparing the Statement.

Conclusion

Based on the procedures performed, nothing has come to our attention that causes us to believe that the non-financial statement is not presented in accordance with the applicable regulatory requirements and that the Information, taken as a whole, is not presented fairly in accordance with the Guidelines, in all material respects.

Paris-La Défense, 24 February 2021

KPMG S.A.

Anne Garans
Partner
Sustainability Services

Eric Dupré
Partner

⁽¹⁾ Ethics and compliance, human rights, climate change, failure of suppliers and subcontractors in social and environmental issues, exposure to chemicals.

⁽²⁾ Arkema France S.A., of which Marseille, Pierre-Bénite and Saint-Auban sites (France); Arkema Inc., of which Beaumont, Calvert City and Clear Lake sites (USA); Taixing Sunke Chemicals Co. Ltd. (China).

Appendix

Qualitative information (actions and results) considered most important

E-learning courses dedicated to safety
Risk assessment at the workplace
Agreements signed in the context of social dialogue
Sales volume covered by a full life cycle analysis
Deployment of the STARMAP IT tool for environmental analysis of industrial sites
Actions undertaken that have contributed to improving the Group's environmental performance
Investments financed as part of the Arkenergy program
Optim'O specific audit program
Whistleblowing procedures
Identification and analysis of possible human rights breaches
Awareness raising and training on responsible purchasing
Evaluation of suppliers and subcontractors regarding CSR criteria

Key performance indicators and other quantitative results considered most important

Total headcount as at 31 December and breakdown by age, gender and geographical area
Percentage of women in senior management and executive positions
Percentage of non-French nationals in senior management and executive positions
Average number of training hours per employee per year
Percentage of employees benefiting from personnel representation and/or trade union representation
Percentage of employees benefiting from regular medical check-ups
Total Recordable Injury Rate (TRIR)
Lost Time Injury Rate (LTIR)
Process Safety Event Rate (PSER)
Percentage of sites implementing peer observation of tasks
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 – Categories 1, 9, 12)
Volatile Organic Compounds (VOC)
Total water withdrawn
Chemical Oxygen Demand (COD)
Hazardous waste
Waste disposed of by third parties without recovery
HFC emissions (hydrofluorocarbons)
Number of patent applications filed during the year relating to sustainable development
Percentage of plants taken part in the "Common Ground ®" program
Sales from products made in full or in part from renewable raw materials
Share of ImpACT+ sales within the framework of the ARCHIMEDE program (solution portfolio assessment)

4.5.7 Contacts

See section 8.2 of this document



APPENDIX **INNOVATION** **STRATEGY**



1

1.1 Innovation strategy

Clearly defined in a Group policy in 2018, innovation is a component of Arkema's targeted growth strategy and of its contribution to sustainable development and to major challenges facing the planet. 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 technical expertise, 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. Excluding the Intermediates segment, around 15% of Group sales are generated from products that are less than 5 years old.

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
- the development of digitalization.

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 innovation projects funded by Arkema's various Business Lines and activities 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 R&D department, the Sustainable Development department, the Process department, the Industrial Property department, the Group businesses' global R&D departments, the scientific departments and Arkema'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.

To stay up-to-date with the latest knowledge and technologies in their area of expertise, the Group's researchers regularly attend and speak at scientific seminars and conferences, participate in "innovation days" organized by key customers or suppliers, and collaborate with academic partners, notably by contributing to the supervision of doctoral theses.

In 2020, R&D expenditure totaled €241 million, representing 3.1% of Group sales. R&D expenditure as a percentage of sales varies between businesses. It is higher in specialty areas and particularly in the Advanced Materials segment, where R&D helps find solutions for customers and respond to the major sustainable

development trends. Arkema's R&D teams comprised more than 1,600 researchers in 2020, spread across three regional research and innovation hubs.

R&D expenses break down among Arkema's four segments and its corporate research program as follows:

• 10% for the corporate research program

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 that will be developed commercially by the Group's segments at a later stage. It coordinates research efforts on high potential cross-functional areas such as batteries, composite materials and hydrogen storage;

• 39% for the Advanced Materials segment

The global challenges of sustainability and energy transition require the development of new, innovative materials which combine extreme performance, implementation productivity, lightness and recyclability. They are used for high value added applications in markets such as transportation, production and storage of renewable energy, 3D printing, water treatment and consumer electronics. In the field of polymers, the Advanced Materials segment's R&D develops polyamides, PVDF and PEKK for the lightweighting of structures by substituting metal parts with thermoplastic composites in the automotive or aerospace industry, and are used for new production techniques such as 3D printing which enable optimal design of complex parts. The R&D department designs innovative and competitive solutions for the production and storage of renewable energy (photovoltaic, wind power, batteries, and hydrogen storage), bio-based solutions (polyamide 11, surfactants) that contribute to reducing the consumption of fossil raw materials and make recycling easier (surfactants for roads coatings), as well as in water treatment (PVDF, hydrogen peroxide), animal nutrition (intermediates for methionine), and consumer goods (high-performance polymers and elastomers for consumer electronics, sport, technical apparel, etc.).



It forms strategic technological partnerships with leading industrial customers, such as those developed with Hexcel in composites for the aeronautics industry, with CJ CheilJedang in animal nutrition and with EOS and HP in 3D printing. The segment's technical excellence is reflected in the strong reputation of brands such as Rilsan®, Pebax®, Kynar®, and Luperox®;

- **21% for the Adhesive Solutions segment**

In the widely diverse area of adhesives, Arkema is focusing its R&D efforts on sustainable solutions. The packaging sector is currently undergoing significant change, with numerous projects aimed at redesigning packaging to incorporate recyclability directly at the design stage. Bostik is contributing to these changes through the development of new adhesives. Research on industrial adhesives for the assembly of durable goods or the manufacture of hygiene products is also driven by sustainable development requirements, either through the use of bio-based raw materials or the creation of more efficient assembly technology. In 2020, Bostik significantly diversified its offering of specialty hot-melt adhesives by offering films and powders in addition to the traditional granules. One of the main areas of innovation is in engineering adhesives, which are experiencing high growth in the electronics, security and medical markets. Lastly, a large portion of Bostik's R&D is dedicated to reducing the environmental impact of buildings and developing innovative, functional adhesives and waterproofing products for the construction and DIY markets, thus helping to reduce buildings' climate impact whilst improving indoor air quality;

- **20% for the Coating Solutions segment**

The segment's R&D develops innovative solutions for the coatings market. There is a constant evolution of coatings toward solutions without controversial substances that meet the increasingly strict requirements with regards to the protection of people and the environment. Technologies for water-based resins are being developed to replace conventional solvent-based technologies, while maintaining the same level of technical performance. R&D also focuses on technologies for industrial coatings, on the one hand in the area of photocure coating resins for markets such as inks for food packaging and furniture, and on the other hand by optimizing the environmental footprint of conventional technologies through the reduction of volatile organic compounds and the increasing use of bio-based raw materials. At the same time, new additive technologies using solvent-free processes are being developed, with optimized cost/performance profiles, for the decorative paints and industrial coatings markets, with the integration of bio-based technologies. Lastly, 3D printing solutions constitute another development focus, using the know-how gained in the area of photocure resins for coatings. In addition to working closely with customers to provide responsive technical support, the segment's R&D teams also carry out process research, which enables them to optimize production costs and produce new formulas on an industrial scale; and

- **10% for the Intermediates segment**

Its R&D objectives focus on ensuring that the segment's processes are competitive and finding new applications and end markets for its products. One of its primary objectives is to continuously improve its processes 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.

1.1.2 A portfolio of research and development projects

Global population growth and changing lifestyles are affecting demand for energy and materials, as well as needs in the areas of health, well-being and transportation. They are also affecting 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 five cross-business platforms, which target areas with strong development potential and form the base of its portfolio of R&D projects:

- natural resources management;
- lightweight materials and design;
- new energies;
- electronics solutions; and
- home efficiency and insulation.

In addition to these five innovation platforms, the Group also has a number of process technology platforms focused on generating innovative production methods that promote the principles of eco-design. These platforms are described in section 1.1.2.6 of this chapter.

The Group is prioritizing the development of a circular economy, in line with the recommendations of the materiality assessment conducted in 2019. This thematic is now associated with bio-based products and water management within the new platform "Natural resources management".

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 incorporates corporate social responsibility into all of its R&D projects and implements eco-design and circular economy techniques, as described in section 4.2.3 of this document. When identifying the risks and opportunities of each project, Arkema takes into account the entire value chain, from raw material extraction to product end-life, as well as the United Nations' Sustainable Development Goals. For further details, see section 4.2.4 of this document.

1.1.2.1 "Natural resources management" 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." In 2020, Arkema joined the World Business Council for Sustainable Development (WBCS), with a view to acting in partnership with the network to help boost the transition to a more sustainable world.

Arkema has developed a wide range of bio-based polyamides derived from the castor oil plant, which is mainly grown 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 sports shoe soles. Moreover, Rilsan® Clear can now also be produced from bio-based raw materials, creating interesting new design possibilities for injection-molded parts. These transparent polymers offer greater flexibility and easier processing capabilities than existing solutions. Combining ultra-light weight, high transparency and chemical and mechanical resistance, Rilsan® Clear products offer new opportunities in various markets.

Through its expertise and innovation in renewable polyamides, the Group offers:

- innovations in the iconic Rilsan® polymer range, a reference in the automotive and oil extraction industries;

- 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 eyewear frames, watches and respiratory masks;
- light, resilient elastomers capable of returning the elastic energy absorbed during deformation, like those used in Pebax Powered® sports shoes;
- rigid materials designed to serve as reinforcements in composites, such as the Platamid® or the Rilsan® XDM50 and XZM60 ranges designed for the numerous structural parts found in telephones, tablets and other mobile devices; and
- Rilsan® Invent Natural fine powders, used in additive manufacturing via laser sintering.

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 fermentation process. These innovations have been implemented at the Kerteh production facility in Malaysia. The remarkable results obtained have led Arkema to set up a research program on enzyme catalysis as a synthesis process for other products in its portfolio (for further details 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 10% of Group sales.

FOCUS

Arkema goes green in detergents

Launched in 2019, the Sensio™ range marks a breakthrough innovation in surfactants, the key chemical components in detergent formulations. Although most plant-based surfactant manufacturers use palm, soybean or sunflower oil, Arkema has instead turned to castor oil, which it already uses in its bio-based polyamide range. Castor beans, which are grown primarily in arid and semi-arid areas in Asia, are not in direct competition with food resources. The Sensio™ surfactants are sold to formulators in their pure form, without being diluted in water, which limits the environmental and logistic impact. Their exceptional degreasing power results in detergents that outperform traditional cleaning products (hard-surface cleaning, laundry, dish-washing, car-washing and industrial and institutional cleaning products). Sensio™ surfactants were awarded Ecocert certification for their readily biodegradable, non-corrosive properties. The range offers a sustainable alternative to traditional non-ionic surfactants.

In 2020, this innovation was a prizewinner in the "Environment and Natural Resources" category at the sustainable industry awards organized by French magazine *L'Usine Nouvelle*.



In the field of water treatment, Kynar® resins are used as ultrafiltration membranes to treat wastewater or make water drinkable. They allow for much finer filtration of suspended matter, bacteria and viruses while increasing the volumes of treated water by 20 %, at constant energy levels. They also allow the doubling of the service life of certain filtration systems from 5 years to 10 years.

Among the Group's product offering, acrylic acid is used to manufacture polyacrylates used in water treatment facilities for the flocculation of suspended matter. Arkema also continues developments to increase the use of Albion® hydrogen peroxide in the disinfection of cooling systems or as a product to treat drinking water or swimming pool water. Compared with traditional chlorine-based treatment solutions, this solution allows the elimination of chlorinated discharges.

Lastly, Arkema's R&D assesses polymer recycling processes used in thermoplastic composites from the "Lightweight materials and design" platform, which will allow users to recover waste through dedicated channels.

FOCUS

Arkema wins two prizes at the JEC Composites Innovation Awards 2020 for its thermoplastic composites for the aerospace and rail industries

Arkema and Institut de Soudure, in partnership with Hexcel, Latécoère and Stelia Aerospace, were joint winners of the 2020 JEC Award in the "aeronautics innovation" category, with a thermoplastic composite welding technology for the assembly of PEKK/carbon structural parts. In particular, this fully automated solution reduces the number of post-processing stages, generates weight savings, draws on recyclable thermoplastic materials and is energy-efficient thanks to highly localized heating.

Stratiforme Industries won a second prize, the "Public Award 2020", for its Destiny project developing a train cabin in thermoplastic composite material, based on Arkema's Elium® resin. Thermoset composites, the reference materials in this industry, are hard to recycle at the end-of-life stage. As such, the development, manufacture and approval of recyclable composite products that meet industry specifications is a real revolution in this area.

1.1.2.2 "Lightweight materials and design" platform



Global population growth, rising living standards, increased mobility 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 mechanical bonding systems, or composite materials.

3D printing, or additive manufacturing, also helps to meet this goal. By enabling the design of complex parts, these technologies simplify assembly and make 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 are extremely hard to recycle 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, wind power and construction 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 substitutes made from these thermoplastic resins is expected to deliver weight savings of between 30% and 50%.

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.

FOCUS

Elium® resin, winner of the 2019 JEC Innovation Awards in the "Construction" category

Arkema received first prize in the "Construction" category at the 2019 JEC Innovation Awards. The award recognizes the development and manufacture of reinforcement bars (rebars) and cables for prestressed concrete applications, in partnership with SIREG (Arcore, Italy), the University of Miami, and the National Cooperative Highway Research Program (NCHRP).

These products have been processed through pultrusion using this technology's standard equipment. They do not rust or corrode, and they can be reheated and easily shaped or bent, reducing the cost of manufacturing rebars with custom shapes. As demonstrated by the University of Miami, the use of composite materials also allows concrete mixtures or salt-contaminated aggregates to be made using seawater instead of fresh water, with significant implications for island nations and arid coasts where fresh water is in short supply.

The use of composite materials for concrete prestressing is a major innovation, revolutionizing the durability of concrete construction to an unprecedented level since its invention in the 1930s.

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 the Rilsan® Fine Powders polyamide 11 powders, Kepstan® PEKK powders, UV curable N3xtDimension® resins and Pebax® thermoplastic elastomers. 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.

To support the rapid development of 3D printing as an industrial manufacturing method, Arkema opened a new global center of excellence for 3D printing based on powder bed fusion technologies in Serquigny, France in 2019. The new center has rounded out the Group's existing network, which comprises a center based in Exton, Pennsylvania in the United States for photocure liquid resins inaugurated in 2018, and another in King of Prussia, also in Pennsylvania, for filament extrusion. 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.

FOCUS

Arkema invests in Adaptive3D, a US start-up developing high-end polymer resin for additive manufacturing

Arkema is the main investor in the second round of financing for Adaptive3D, an innovative Company specialized in advanced photocure resins for additive manufacturing. This investment will boost the Group's expertise in the design of photocure liquid resins and demonstrates its commitment to accelerating the development of 3D printing technologies for manufacturing. Adaptive3D markets photocure resins for the streamlined additive manufacturing of complex, functional parts in high-performance elastomers, targeting a wide range of applications on the consumer goods, healthcare, industry, transportation and oil and gas markets. Through Sartomer and the pioneering range of liquid resins N3xtDimension®, Arkema and Adaptive3D have already successfully carried out a number of technical and marketing developments. With its investment in Adaptive3D, Arkema is aiming to establish a partnership in the additive manufacturing ecosystem, from the development of new materials to the manufacture of specialty resins and functional end products, thus bringing advanced, industrial-scale materials solutions to the market.

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 for all" 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, wind turbines and solar thermal power plants.

Thanks to its technological expertise, Arkema offers a number of innovative solutions aimed at improving the production, conversion, transportation and storage of these new forms of energy.

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 the main components of lithium-ion batteries – in the 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.

Material solutions for hydrogen mobility

Arkema has positioned itself as a benchmark "materials" partner for hydrogen mobility systems. The technical challenges to address correspond to the areas of development of high performance materials that are both lightweight and resistant to extreme conditions. The deployment of hydrogen as the energy solution of the future will require an industrial scale-up. As a major chemicals Group, Arkema has the appropriate know-how to achieve this.

The Rilsan® polymers offer low hydrogen permeability and so can be used in the manufacture of tank liners resistant to low temperatures (-40°C).

The carbon fiber composites and related processes developed by Arkema open up possibilities for the production of entirely thermoplastic high-pressure (700 bars) tanks for cars, trucks, buses or trains, which would be more resistant to alternating stress and fully recyclable at the end-of-life stage. The Group is also looking into composite solutions for electrolyser or cryogenic (liquid hydrogen) tanks for long-distance or air transportation.

Lastly, its Kynar® high-chemical resistance fluorinated polymers are prime candidates for fuel cells to improve the resistance of bipolar plates and Membrane Electrode Assemblies (MEAs).



Materials for photovoltaic cells

Photovoltaic cells are made up of a number of highly technical organic materials that protect the silicon layer from outside elements. Arkema harnesses its performance materials expertise to bring to 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.

Materials and products for the wind turbine industry

The Elium® resin developed by Arkema is a lightweight thermoplastic composite that notably enables the manufacture of wind turbine blades. The resin's recyclability represents a major advantage for wind turbine manufacturers. This technology won an award for innovation at JEC Asia 2017 in Seoul, and in 2020 won the Pierre Potier prize, which is awarded by the French Ministry of Industry to commend sustainable development initiatives by the chemical industry.

FOCUS

Arkema supports the wind power industry in its transition to sustainable energy

Recycling end-of-life wind turbines is a major industrial and environmental challenge for the wind power industry due to the considerable volumes involved. The ZEBRA (Zero waste Blade ReseArch) project was launched in September 2020, with the aim of creating the first 100% recyclable wind turbine. The initiative is led by French research center IRT Jules Verne, with support from Arkema, Canoe, Engie, LM Wind Power, Owens Corning and Suez.

With its Elium® thermoplastic liquid resin and its structural adhesives, Arkema offers a breakthrough innovation in the composites market, opening up new perspectives in many sectors and especially in the production of wind turbine blades. This resin is perfectly in line with the circular economy approach that the Group has undertaken for both its operations and its products.

The Elium® resin-based composite parts are 100% recyclable, through a mechanical or chemical recycling process of scraps and end-of-life composite parts. Since it is chemically recyclable, the resin can be used over and over again while preserving the same properties as a virgin resin, making this technology a perfect fit for the circular economy.

Arkema's position in this consortium demonstrates the Group's commitment and drive to be part of a product design model with a circular economy approach. Arkema's ambition is to provide sustainable and innovative solutions that contribute to the United Nations' Sustainable Development Goals (SDGs), and more specifically with this project, to SDG 7: "Ensure access to affordable, reliable, sustainable and modern energy for all".

1.1.2.4 "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 high-performance 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 while offering ultra-high rigidity and made using the same simple injection molding process, as well as to the external parts, which need to be stain and shock resistant. Arkema markets materials that meet these increasingly demanding requirements, as well as adhesive solutions for their assembly. A new range of engineering adhesives has been developed and marketed by Bostik under the brand name Born2Bond®. The range includes photocure adhesives for the assembly of electronic equipment with enhanced precision and productivity, and photocure sealants shaped *in situ*, which ensure that the devices are watertight and can be dismantled and repaired.

With its fluorinated electroactive polymers (Piezotech®), Arkema provides an extremely innovative range of materials for emerging electronics segments, such as organic, flexible and printed electronics. Piezotech® fluorinated electroactive polymers and inks exhibit unique piezoelectric, pyroelectric, electrostrictive, electrocaloric and high dielectric permittivity properties, making them central to the development of next-generation sensors (pressure, deformation, infrared, etc.), actuators (haptic, medical, microfluidic, etc.) and flexible transistors for use in various next-generation products such as screens, solid-state cooling systems, energy recovery systems, printed loudspeakers, etc. Depending on their composition, these materials offer a wide range of functional properties, including extreme sensitivity to deformations, vibrations, heat and the creation of sensations, energy, or even cold. Already used in smartphones and acoustic sensors, these materials also offer attractive possibilities in consumer electronics such as car dashboards and seats, virtual reality gloves, smart textiles and footwear, fitness trackers, video game controllers, flexible screens, smart pill dispensers, etc. Professional applications currently being evaluated include connected labels and packaging, border controls, medical imaging, catheters, organic photovoltaics and connected sensors for cutting-edge manufacturing facilities. To develop these innovations, Arkema draws on a vast network of partners, including universities, industrial companies and trade organizations in the European Union and around the world.

Certain Foranext® high-purity fluorinated intermediates play an important role in the various stages of the manufacture of semi-conductors, where they are used to selectively eliminate matter through plasma etching.

The Sartomer® and Sarbio® specialty monomers and photocure resins have been developed to protect printed circuits and electronic components through encapsulation and coating. They improve the mechanical resistance of electronic devices and provide better protection against damage caused by the environment, thus increasing longevity.

Moreover, the arrival of 5G telecommunication networks brings a strong increase in demand for functional materials (dielectric properties, transparency or opacity to micro waves) and for specific energy storage systems, which represent development opportunities for the Group's innovative materials, such as Kynar® fluoropolymers, Elium® resins and Nanostrength® additives.

1.1.2.5 "Home efficiency and insulation" platform



Energy efficiency, health, comfort and environmental friendliness 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 the United Nations' SDG 11: "Make cities and human settlements inclusive, safe, resilient and sustainable." Mindful that this trend is likely to continue over the long term, Arkema has made it 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. The Kynar Aquatec® PVDF emulsion is used in the formulation of white coatings for cool roofs, which reduce buildings' energy consumption. These resins are exceptionally durable, thus preserving the white finish for an especially long time without maintenance.

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 are phthalate- and solvent-free and have sufficiently low volatile organic compound (VOC) content to obtain health certifications like EC1 Plus and to meet the environmental standards required for 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.

This 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.

1.1.2.6 "Process 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 notably 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 materials with high technical performance, 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 2020, Arkema filed 203 priority patent applications, of which 158 related to sustainable development. At 31 December 2020, it held 10,171 patents and had 5,671 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 period 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, Asia, 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 patent licenses to meet operating requirements, or granting them to third parties. 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 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 of Arkema's flagship brands include Kynar®, Pebax®, Rilsan®, Forane®, Careflex®, Evolution®, 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 segments (one project may involve several Group activities); and
- a portfolio that is balanced between projects that are expected to be brought to market within five years and projects with longer timelines.

(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.

Since its creation, it has notably developed nanostructured copolymers Nanostrength® which enhance shock resistance of polymers, and Apolhya® used notably for photovoltaic cells protection, as well as 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

- continuous glass-fiber-reinforced thermoplastic solutions, such as the Rilsamid® Matrix range, for automatic fiber placement and thermo-stamping.

The incubator also developed PEKK, a new polymer withstanding ultra-high temperatures, under the Kepstan® brand. This activity was initiated 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 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 implementation processes and mechanical properties.

In Asia, 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 with Monash University in Malaysia. The purpose of this collaborative research center is to develop, in the Kuala

Lumpur campus, understanding of biocatalysis, a discipline that could lead to more sustainable processes than those achieved with traditional chemistry, and to identify new ways to access sulfur products.

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.

FOCUS

In keeping with the strategic alliance formed with Hexcel in 2018 to develop thermoplastic composite solutions for the aerospace industry, Arkema has been taking part since 2019 in the collaborative HAICoPAS (Highly Automatized Integrated Composites for Performing Adaptable Structures) project aimed at optimizing the design of pieces made of recyclable composites to meet the needs for more lightweight materials in the aerospace and automotive sectors and for oil and gas pipelines.

The project combines the skills of Hexcel (carbon fiber), Arkema (high performance polymers) and a group of small- and medium-sized enterprises (Institut de Soudure, Ingecal, Coriolis Composites and PEI) known for their composites expertise. The project also has scientific support from two CNRS laboratories: PIMM (CNRS – Arts et Métiers ParisTech engineering school) and LTEN (CNRS – University of Nantes), which will provide the basic understanding required to optimize and apply the materials.

The project is backed by Bpifrance, which runs France's "Investissements d'Avenir" (investments of the future) program on behalf of the General Secretariat for Investment, as well as by the Plastipolis "Pôle de compétitivité".





APPENDIX 1 : INNOVATION STRATEGY

Innovation strategy

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 ultra-innovative product and high-tech markets.

1.1.6 Development of digitalization

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. The R&D department has launched a "digital laboratory" project to gradually integrate artificial intelligence into R&D processes. This will notably include the analysis of images to characterize the structure of materials, the analysis of formulation data to speed up optimization and semantic data analysis to facilitate access to scientific information and accumulated expertise.

APPENDIX RISKS AND INTERNAL CONTROL

2

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 health crisis which marked 2020 and continues at the start of 2021 has increased the criticality of certain risks to which the Group is exposed, such as supply chain risks, cyber attacks, or risks linked to capital expenditure projects. Nevertheless, while the pandemic affected the Group's operating and financial performance, the risk mitigation and prevention measures in place enabled the Group to diminish the consequences thereof.

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.

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 this section as well as in section 2.2 of this chapter.

At the date of this document, the main risks to which Arkema considers itself to be exposed have been categorized as follows without any order of precedence being established between the risks:

- industrial risks;

- risks relating to compliance, legal proceedings, societal expectations and internal control;
- operational risks;
- project and innovation risks;
- economic and business risks; and
- financial risks.

In accordance with regulation (EU) 2017/1129 of the European Parliament and of the Council of 14 June 2017 (known as "Prospectus 3") and ESMA Guidelines published in October 2019, the risks are ranked within each category. The risks are classified by descending order of importance at the date of this document, based on their potential negative impact and their probability of occurrence, after factoring in risk mitigation measures deployed by the Company. Each risk presented has a clear and direct link with the Group and its business activity. 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. Moreover, Arkema may alter its assessment of the order of importance of the risks to which it is exposed at any time, notably as a result of external developments or changes in the Group's business activities.

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

2.1.1 Industrial risks

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 (notably customers, suppliers and people living nearby).

Accident 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 or finished products, or production, supply or delivery 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 34 "Seveso" classified sites in Europe (as defined by directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of hazards linked to major accidents

involving dangerous substances), i.e., more than half of the Group's 64 European sites. Outside Europe, the Group operates industrial facilities that fall under a similar classification, including 22 such facilities in the United States where hazardous substances that are liable to present significant risks to the health or safety of neighboring communities and to the environment are used, produced or stored. These classified sites accounted for approximately 56% of Arkema's total sales in 2020.

Like other chemical sector players, Arkema also owns or uses a small number of pipelines to transport hazardous chemical products.

Moreover, climate change could increase the frequency and intensity of certain weather events (storms, flooding, droughts), leading to incidents or accidents at some of the Group's production sites. For further details, see "Natural disasters and climate change" in section 2.1.3 "Operational risks".

Finally, Arkema may suffer the consequences of possible malicious acts against its facilities or equipment, notably those manufacturing hazardous products and/or "Seveso" classified sites.

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. This could lead to commercial problems, generating significant losses in terms of sales and earnings for the activities concerned, and significant potential costs, in particular due to administrative authorizations or insurance deductibles and damages not covered by current insurance policies. Arkema could also be held liable (i) following injury or damage to people (notably due to exposure to hazardous substances being used, produced or destroyed by Arkema or present on its sites), and/or to property, 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.

Risk management

In order to best prevent the risk of accidents, the Group defines scenarios that enable it to assess and anticipate the consequences of various events.

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. Details are provided in section 4.3 of this document.

In addition, in order to 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;
- where possible, 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 a 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 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, in the context of ever-increasing caution linked to terrorist attacks since 2015 and malicious acts, additional security measures have been put in place.

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.

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.

In 2020, 36 occupational illnesses were reported Group-wide, of which 18 were related to exposure to asbestos and 10 to exposure to chemicals. These figures include illnesses not yet included in the tables listing occupational illnesses. 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. For further details, see section 4.3.2.2.4 of this document.

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

In the event that specific pathologies were to be linked to substances used by the Group or present in the products that it sells, the Group cannot rule out the possibility that it may be held liable.



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 its industrial sites and within its 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, if necessary, 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.

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.

The Group 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 and the related provisions are detailed respectively in notes 10.2.1 and 10.2.2 to the consolidated financial statements at 31 December 2020 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 SE 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 10.3 to the consolidated financial statements at 31 December 2020 in section 5.3.3 of this document.

Risk of loss of occupancy of certain industrial sites

Arkema owns most of the land on which its industrial sites are built, but some of the Group's industrial facilities in its worldwide network, especially in Asia, 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 lead the Group to incur significant expenses related in particular to the demolition of existing facilities, the clean-up or remediation of these sites and the reconstruction of new facilities. The Company may even be forced to cease certain production activities, which could have a material adverse impact on its business activities, financial position and earnings. Such an event could lead to several scenarios, including having to move production (and thus all the costs this would involve), or a loss of earnings or margins. For further details on the location of the Group's industrial sites around the world, see the "Profile, ambition and strategy" section of this document.

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, legal proceedings, societal expectations and internal control

Non-compliance with business practices CSR

The Group is present in 55 countries and uses commercial intermediaries throughout the world, including in Asia, the Middle East, Africa and South America, where it generates 31% of its consolidated sales.

As indicated in section 4.4.2.2 of this document, Arkema pays special attention to the commercial intermediaries it uses in order to minimize the risk of corruption or fraud. Despite this vigilance, there is still a risk that an intermediary may violate anti-corruption laws, resulting in liability on the part of Arkema. If this were to happen, significant sanctions and/or fines could potentially be imposed on the Group, in particular based on US regulations with an extraterritorial reach.

Moreover, 22 of the countries in which the Group operates are subject to financial or commercial restrictions and some of the Group's products fall within the definition of dual-use goods regulated by international conventions (notably diethylamine and diisopropylethylamine).

Finally, the Group is exposed to the risk of anti-competitive business practices, including price-fixing and cartel-type arrangements. This risk is accentuated by the fact that there are a limited number of competitors in many markets in which the Group does business.

Non-compliance with regulations in the aforementioned areas in one or several countries may result in significant fines being levied on the Group or in 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 together with procedures and guidelines 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.

Furthermore, 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 societal expectations CSR

Arkema's operations, carried out in 55 countries, are subject to constantly changing national and international laws and regulations in a large number of fields, including safety, environmental protection, antitrust legislation, company law, commercial law, intellectual property, labor law, personal data protection, tax law, customs regulations and product stewardship. These laws and regulations impose increasingly strict obligations, particularly concerning industrial safety, occupational health,

emissions and discharges into air, water and land of toxic or hazardous substances, rational use of resources, labeling, traceability, handling, transportation, storage and disposal of toxic or hazardous substances and exposure thereto, clean-up of past industrial sites, and soil and groundwater remediation.

If existing product regulations were to be amended to become more restrictive for Arkema or if new regulations were adopted, 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, (iii) possibly compel Arkema to abandon certain markets, incur significant expenditure to produce substitute substances or institute costly emissions control or reduction systems, or (iv) exclude Arkema from certain markets if it could not develop substitute products. At the date of this document, fluorogases have been identified as the most exposed to regulatory changes. The implementation of the Montreal and Kyoto Protocols and the Kigali Amendment has led to a change in regulations with regard to emissive fluorogas applications in a certain number of countries. For this reason, the transition from old generation refrigerants (hydrochlorofluorocarbons, or HCFCs) to existing generations (hydrofluorocarbons, or HFCs) then to new generations of low global warming potential refrigerants (hydrofluoroolefins or HFOs) is taking place progressively at different paces depending on the region, application and product. For example, the European F-Gas regulation no. 517/2011, which aims to reduce volumes brought to market by more than 80% between 2015 and 2030, has introduced a quota system and gradual bans on certain usages, while the European MAC (Mobile Air-Conditioning) directive has banned the use of refrigerant gases with a global warming potential higher than 150 in all new vehicles sold in Europe since 1 January 2017. In the United States, HCFC-22 quotas were revised downward for the 2015–2019 period and since 2020, the production and import of HCFC-22 are no longer allowed. Only sales of stockpiles and recycled products are authorized. Lastly, for new equipment and expansion foams in Europe and North America, HCFCs have been replaced by HFCs. These regulatory changes weigh on volumes and may also lead to high selling price volatility. For example, between 2015 and 2019, the Fluorogases activity generated a significant share of its earnings in the United States from the sale of HCFC-22. Similarly, the implementation of the European F-Gas regulation substantially tightened the balance between HFC supply and demand in Europe, in second-half 2017 and in 2018. Since 2019, however, illegal imports of HFCs into Europe have weighed on both prices and volumes, significantly affecting the business' performance in the region. There have also been discussions, particularly in Europe and the United States, on changes in regulations concerning per- and polyfluoroalkyl substances that could have an impact on certain Group fluoropolymer chemical activities. Moreover, the French Law of 10 February 2020 relating to the fight against waste and the circular economy, which introduced restrictions on the use of microplastics intentionally added to products, will have a limited impact on some of the Group's products used in cosmetic applications from 2027.



In parallel, in 2021, the European Commission is expected to finalize a proposed restriction on the use of microplastics in certain applications, which could mean that France will eventually have to align its own legal provisions with the new European regulatory framework.

As part of the “Green Deal” and with the launch of the “Chemicals Strategy for Sustainability”, Europe is opening a major new regulatory chapter for the assessment and management of chemical risks, based on a heavily revised generic approach to hazard and risk. The strategy will be implemented over the next four years according to the normal process for developing – or revising – the related regulations.

As a general rule, Arkema pays particular attention to ensuring compliance with all applicable laws and regulations. Non-compliance could result in significant fines being levied on Arkema or in civil or criminal charges being brought against it and/or its employees. As regards tax, Arkema applies documented transfer pricing policies to its inter-Company flows that are recognized by the OECD and reasonable with due regard to the risks and functions of Group entities. However, the tax authorities may disagree with these policies or the margins allocated to the various entities, which may lead to tax reassessments. A description of the most significant current or potential litigation is given in note 10.2.2 to the consolidated financial statements at 31 December 2020 in section 5.3.3 of this document.

Lastly, the Group is especially attentive to the societal expectations expressed by civil society, non-governmental organizations and local associations. For a chemical company like Arkema, higher expectations could, 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, resulting in significant additional expenditure and investment to adapt to these requirements. Failure to take action or delays in implementing measures to meet these requirements could result in financial losses through loss of market share or even a loss of reputation for the Group.

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 consultants or the relevant government authorities, work continuously to ensure that a high level of knowledge of the applicable legal framework 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 its industrial sites and within its operational units and subsidiaries. These experts are more specifically responsible for monitoring regulatory changes (especially those that concern products being developed in several countries) and producing the documents required to comply with the regulations within the prescribed time limits. 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. For further details, see notably section 4.2.5 of this document.

In cases where regulatory changes lead to restrictions on the use of raw materials or the marketing of finished products, Arkema works to develop new products or substitutes and relies on its R&D to develop alternative solutions. For further details, see section 1.1 of this document.

Legal, administrative and arbitration proceedings

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 tortiously or contractually 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, exposure to chemical products, non-compliance with export control regulations, or violating anti-corruption laws, as well as over disagreements concerning the interpretation of the law, established case law, international treaties or tax authorities’ commentaries in one of the many countries in which Arkema does business.

A description of the most significant current or potential litigation is given in note 10.2.2 to the consolidated financial statements at 31 December 2020 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.

Risk management

The Group has implemented a policy whereby the Legal department monitors all administrative, legal or arbitration actions, suits and proceedings, with support from specialist law firms where necessary.

All legal risks related to current or potential litigation are subject to a quarterly review. In this context, each business, corporate department and subsidiary must provide Arkema's Accounting and Controlling department and Legal department with a written summary of any legal risks or proceedings that affect, or are likely to affect, Arkema's business activities, results or financial position. These two departments analyze the risks and legal proceedings that were identified and determine, in liaison with the internal contacts concerned, the amount of the provisions relating to such risks and legal proceedings based on the rules described in note 2 "Accounting policies and new standards" and note 10 "Other provisions and other non-current liabilities, contingent liabilities and litigation" to the consolidated financial statements at 31 December 2020 in section 5.3.3 of this document.

2.1.3 Operational risks

Dependency on 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 has entered into certain multi-year supply contracts, including those governing Arkema's supply of propylene and oxo alcohols, hydrofluoric acid (HF), 1,1,1-trichloroethylene and cyclododecane (CDAN), which are used as a main raw material for acrylic monomers, fluorogases and polyamide 12, respectively. 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, the Group signed an agreement with Total on 3 September 2015 covering the period to 30 April 2021. The two companies have recently finalized the negotiation of a long-term agreement extending the propylene supply of the Carling site by Total.

In the first half of 2020, Arkema France negotiated new terms and conditions for the electricity supply to some of its industrial sites to cover its medium-term needs.

Some of Arkema's French production plants, which consume and ship significant quantities of bulk raw materials classified as "hazardous materials" for transportation purposes, are dependent on the quality of service provided by rail operators and storage authorizations at the sites in question, especially when there are constraints on transportation solutions for operational or regulatory reasons (e.g., single wagons and not full trainloads; no road alternatives). They are therefore monitored very closely, in liaison with the authorities, infrastructure managers and freight operators.

Internal control failures linked to recently acquired subsidiaries

As part of its overall corporate strategy, Arkema pursues a bolt-on acquisition program that targets small and mid-sized businesses. Over the past three years, the Group has acquired several companies or Groups of industrial companies, such as ArrMaz, Lambson, Prochimir, LIP and Ideal Work. The internal control systems of the subsidiaries acquired vary in terms of their maturity. This may result in errors due to poor knowledge of best practices and attempts at internal or external fraud that may cause financial or even reputational damage to the Group.

Risk management

Following the completion of an acquisition, Arkema needs an average of two years to deploy its global internal control and risk management procedures. This system, its organization, main stakeholders and framework are described in section 2.2 of this chapter.

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, insofar as possible, 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; these partnerships also provide the Group with a competitive long-term cost of supply;
- prudent 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.



Customer risks

For certain business activities, Arkema has entered into agreements representing significant income with certain customers, the most significant of which are described in section 1.2 of this document for each business concerned. Any crisis affecting an economic sector of Arkema's customers, together with termination, non-renewal or renewal on less favorable terms than those initially agreed for the main contracts, could lead to significant losses in sales and earnings for the businesses concerned, and a sharp deterioration in their profitability. 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, see note 10.2.2 to the consolidated financial statements at 31 December 2020 in section 5.3.3 of this document.

More generally, the Group's relationships with a large number of customers expose it to credit risk. At 31 December 2020, accounts receivable net of provisions amounted to €1,131 million. These accounts receivable are detailed by due date in note 11.6.4 to the consolidated financial statements at 31 December 2020 in section 5.3.3 of this document. Arkema's exposure to credit risk is linked to the individual characteristics of its customers.

Risk management

In addition to a highly diversified customer base, the Group's sales are evenly balanced across the different regions in which it operates, thus limiting the geographical concentration of credit risk.

Regarding customer credit risk, Arkema has set up 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 has also deployed 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, see note 11.6.4 to the consolidated financial statements at 31 December 2020 in section 5.3.3 of this document. The policy concerning provisions for fully or partially uninsured doubtful receivables is also detailed in this note.

IT and cybersecurity risk

The Group's 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. Interruptions to the operation of critical applications or loss of sensitive data (due to system failure or intrusion or malicious use of IT systems) could have a material impact on the Group's business activities, earnings or financial position.

In the event of system failure or intrusion or malicious use of the IT systems, the Group may have to shut down or slow down all or part of one or more industrial units or departments. Given the

nature of the Group's business and the sensitive nature of its industrial processes, any interruption in the operation of critical applications or loss of sensitive data (for any reason whatsoever) may result in the shutdown or slowdown of all or part of one or more industrial units or departments as a precautionary measure.

Risk management

The Group's IT department aims to provide systems access to authorized users while ensuring the integrity and confidentiality of sensitive data, in accordance with accreditations issued. Therefore, the Group constantly adapts its IT and industrial systems' prevention, detection and protection capabilities and implements organizational measures (IT systems security policy, application of international standards, user awareness-raising, user access management, business continuity plan) and technical measures (global cybersecurity operational center, data protection, networks and infrastructures) that reduce the Group's cyber risk exposure.

To ensure the reliability of its critical processes and compliance with security rules, the Group has set up an internal control system consisting of a number of IT general 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.

To boost cybersecurity at a local level, each site must also comply with ten directives. 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 about data protection and cybersecurity.

Contractual commitments

In the course of its business activities, the Group has entered into multi-annual raw materials and energy procurement contracts to guarantee the continuity and security of supplies to its plants. Based on standard market practices in the Group's business sector, some of these long-term contracts include "take or pay" clauses, requiring the buyer to draw down minimum annual volumes over the term of the contract. Group companies may therefore be obliged to pay for minimum quantities whether or not they actually take delivery of these. 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.

In the event of unfavorable economic conditions, a fall in demand or a change in demand for certain Group products, Arkema may not reach the minimum volume and may have to pay a penalty based on the total minimum annual volume cost. These contractual "take or pay" obligations may therefore have a negative impact on the Group's future operating income and cash flows. The Group's total financial commitments amounted to €724 million at 31 December 2020. For more information, see section 5.3.2 "Contractual obligations relating to the Group's operating activities" to the consolidated financial statements at 31 December 2020 in section 5.3.3 of this document.

Risk management

Each Group business deploys an industrial and commercial organization as well as a quality control system designed 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 CSR

Due to their geographic location, 40 of Arkema's 147 industrial sites (especially those located in Texas in the United States) are exposed to seismic and/or climate risks such as floods, drought and storms, the severity and frequency of which may evolve as a result of climate change. In 2020, 28 of these 40 sites were identified as being specifically exposed to climate risks. These classified sites account for around 23% of Arkema's total sales. If they were to become unavailable as a result of significant damage resulting from a natural disaster, this could significantly affect the business concerned, leading to material losses in sales and earnings, and resulting in significant costs due to insurance deductibles and damage not covered by current insurance policies.

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 (CO₂ quota systems), could have a negative impact on Arkema's business activities, operating costs or profitability. Fluorogases, for example, have been identified as the products that are most exposed to regulatory changes for many years.

Risk management

In order to prevent and limit the potential impact of natural disasters and climate change at the exposed sites, insofar as this is possible, the Group has defined scenarios that take into account the evolution and consequences of climate change, including the increased frequency and intensity of certain weather events, such as storms, flooding and drought.

For most of these sites, there are alternative production arrangements within the Group to absorb all or part of the production and thus ensure continuity of customer service. Some, however, are the only production sites for the products in question.

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 has strengthened its existing risk and hazard analysis procedures by devising a policy 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 has developed 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. Concerning fluorogases, 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.

Risk related to health crises CSR

Serious health crises or pandemics, such as the Covid-19 pandemic which emerged in China at the end of 2019 and then spread to most regions throughout the world in 2020, may lead public authorities in France and across the world to adopt measures to restrict the movement of people and the transportation of goods or even to lock down whole populations. These measures could cause disruptions on several levels for the Group. In particular, they could impact supply chains and weigh on customer demand in the different regions of the world. They could also result in partial or total closures of production units, research centers, head offices and other sites.

Health crises or pandemics may impact employees' health and limit their availability, as well as create difficulties with respect to the supply of certain raw materials or the delivery of products to customers.

They may also have a significant impact on the Group's business activity, financial performance (sales and operating income) and cash flow generation.

Risk management

In the event of a pandemic or serious health crisis, Arkema, in compliance with the applicable regulations, implements the necessary measures to protect its employees' health as a priority, to limit the impact of the exceptional situation on its business activities and results to the greatest extent possible, and, lastly, to prepare the return to more normal conditions. To this end, the Group notably deploys crisis management measures at both the central level and in the different countries in which it operates, led by trained personnel.

More generally, the Group ensures that business continuity plans are defined for its main industrial and administrative sites around the world. The plans include actions on two levels:

- health measures to limit the transmission of viruses and protect the health of employees and subcontractors working on the sites by (i) informing all personnel about health measures, raising awareness and providing alcohol-based sanitizers and protective masks, (ii) issuing instructions on how to contain isolated cases, and (iii) reducing the number of meetings and business trips;
- organization measures to ensure business continuity by introducing teleworking solutions and virtual meetings, wherever possible;



- measures to adapt business activity to the level of absenteeism by organizing work in such a way as to enable a site to continue operating despite the absence of significant numbers of employees and, in extreme cases where a very large number of employees are absent, to ensure the safety of the site in question and environmental protection.

Lastly, the Group adopts a strict disciplined approach to financial policy in order to maintain a solid balance sheet and a high level of liquidity and regularly reviews its sources of financing in order to ensure they are sufficiently diverse and have an average maturity of more than three years. The Group may also reduce its recurring fixed costs, adapt its investment expenditure and further optimize its working capital when circumstances so require.

Supply chain disruption

Arkema's customer supply chain may be interrupted due to supplier failure, the unexpected shutdown of a Group production site (supplying other Group sites), supplier or customer production site, or a disruption affecting transportation, logistics or storage and warehousing facilities. These disruptions or extended shutdowns impacting a production site may result from problems with raw material or energy resource supplies, technical incidents, industrial action or natural disasters as well as serious government-declared health crises. They may lead to delivery delays over extended periods of time, which could adversely impact the Group's sales and earnings, as well as the quality of its customer relationships.

Moreover, in the event of difficulties with certain raw materials, alternative sources of supply may be limited or non-existent, or only be available at a very high cost.

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 or 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.

Lastly, 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 delivery delays for certain customers as alternative storage solutions are sometimes limited for certain products manufactured by the Group.

Risk management

In order to 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.

Insurance cover default risk

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 document.

At the date of this document, Arkema believes that the limits of the 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 substantial expenses that will not be reimbursed or only partially reimbursed under its insurance policies, cannot be excluded, notably in the event of an accident at a site or external warehouse, during transportation or in the event of natural disasters.

Arkema selects its insurers from the best and most financially solid 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, recent 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.

Talent and skills risk

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 in which the Group operates.

Arkema's experienced and committed teams enable it to:

- innovate by creating sustainable product and application solutions (in 2020, Arkema's R&D teams numbered more than 1,600 researchers working in 15 research centers structured around three regional research and innovation hubs);
- deploy complex industrial projects (such as the construction of the Thiochemicals platform in Malaysia in a new country using an innovative process and, more recently, the specialty polyamides platform in Singapore);
- successfully integrate acquisitions (in particular within Bostik); and
- more generally, adapt to different macro-economic environments and significantly improve Arkema's financial and non-financial performance.

Given that 33% 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 over the coming years.

Difficulties in hiring or retaining skilled employees – especially those with particular expertise in the technologies required in

sectors like Arkema's – or even the departure of experienced employees (due to resignation or retirement) could hamper the implementation of the Group's strategy and have a negative impact on its business activities and financial position.

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.

2.1.4 Project and innovation risks

Investment and acquisition projects

As part of its targeted growth strategy, based in particular on developing new products and expanding the Group's geographic footprint, Arkema is involved in complex, sometimes very large-scale projects, such as the current investment in specialty polyamides in Asia and the investment in Thiochemicals in Malaysia that was finalized in early 2020. For the 2020-2024 period, the Group estimates that its exceptional capital expenditure will total approximately €525 million. These investments are described in the "Profile, ambition and strategy" section of this document. Arkema also invests around 2% of its annual sales in development projects designed to ensure its future growth. The completion of these projects may be delayed and/or result in expenses in excess of those initially budgeted for by the Group. These elements could weigh on the Group's growth prospects and the expected profitability of these investments and thus have a negative impact on its business, earnings and financial position.

In line with its ambition to become a pure Specialty Materials player, Arkema also deploys an ambitious bolt-on acquisition program that targets small and mid-sized businesses to strengthen its portfolio and Specialty Materials platform. In that respect, the Group has spent more than €1.1 billion over the past three years. These acquisitions may expose Arkema 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 spite of the quality of due diligence performed. In addition, the assumptions on which the acquisitions were made may fail to materialize, in particular the development prospects of these activities may not be achieved, or projected synergies may not be fully unlocked, which may adversely impact the valuation of goodwill together with the Group's growth prospects, earnings and financial position.

Lastly, as part of disposals of non-strategic activities, Arkema may have to provide guarantees to third parties for certain operations. 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

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 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.



Innovation and technologies

CSR

The Group's innovation policy, described in section 1.1 of this document, is a strategic pillar in Arkema's targeted growth strategy and a key component in its contribution to sustainable development. Whether aimed at manufacturing technologies, products or their applications, innovation makes it possible to create sustainable solutions. Innovation enables Arkema to:

- launch innovative new products and solutions on the market while continually improving their performance and providing its customers with the technical support and solutions they need; 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.

In 2020, R&D expenditure totaled €241 million, representing 3.1% of Group sales.

Despite the investments made, the Group may be unable to develop new products and new applications or to develop new production processes. This inability, or a delay in the development of such new products, could prevent the Company from marketing certain products and could therefore have an adverse impact on its business and earnings.

Moreover, changes in processes used by customers or a switch from one technology to another in their products, particularly in the batteries or hygiene products sector, could drag down the Group's sales.

Risk management

With more than 1,600 researchers and €241 million in R&D expenditure, Arkema invests heavily in R&D each year to develop new products and processes that cater to both market demands and societal challenges. This major focus on innovation also enables the Group to adapt to regulatory changes. The R&D teams carry out important monitoring work, both in Arkema's own technological fields, but also further downstream in the technologies of its main customers' businesses. 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 intellectual property and know-how

Arkema is developing an innovation-based growth strategy structured around a dedicated organization, 15 R&D hubs spread throughout the world and a research incubator. It therefore has a large R&D project portfolio. As such, the patents that protect the innovations generated by its research together with its trademarks represent a key asset for its business. At 31 December 2020, Arkema owned 10,171 patents and 203 new patent applications were filed in 2020 (222 in 2019), 158 of which relate to sustainable development. For further details, see section 1.1 of this document.

Consequently, 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. The Group also monitors patent applications filed by third parties. Such applications are only made public on publication and could have an impact on ongoing developments within the Group or on products recently brought to market. They could oblige Arkema to modify its product, thereby increasing the related R&D costs, or to negotiate a license to use the patented component. For further details on patent and trademark management, see section 1.1.3 of this document.

Lastly, 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 through the registration of patents, particularly with the support of a global network of industrial property consultants. For further details, see section 1.1.3 of this document.

When it comes to protecting its know-how and 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

Change in key raw materials prices

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. The delayed impact of raw material price increases may have a significant impact on the earnings of certain Group businesses, particularly downstream businesses, which represent a significant portion of its activities.

Risk management

Arkema strives to optimize the costs of its raw material and energy supplies 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 11.6.5 and 11.2.2 to the consolidated financial statements at 31 December 2020 in section 5.3.3 of this document).

The Group also forges partnerships with certain suppliers who are leaders in their respective fields in order to build strong, long-term business relationships and ensure a competitive cost of supply.

Lastly, Arkema strives to deploy an appropriate pricing policy, in particular in downstream activities like adhesives or downstream acrylics, in order to pass on increases in the cost of the raw materials used to manufacture its products to its selling prices.

Strengthening competition

Arkema is confronted with strong competition in each of its businesses, especially intermediate chemicals, with the strengthening of some of its competitors and the emergence of new players that could impact its own 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, resulting notably in new global capacities and leading to growing competition on certain product lines, such as fluorogases and acrylics. This could result in lasting downward pressure on the selling prices and earnings of these products.

Risk management

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.

Thanks in particular to its innovation, the Group is also deploying a repositioning strategy to diversify its portfolio of products and application markets and strengthen its position in niche markets with higher added value.

Lastly, the Group forges long-term partnerships with customers who are leaders in their fields, enabling it to build solid and lasting commercial relationships with its main partners and support them in their development.

Geopolitical and macroeconomic instability

Arkema's global business, which generates a significant portion of sales in certain regions of the world or countries (36% in Europe, 29% in the United States and 12% in China in 2020), exposes it notably to the direct and indirect consequences of trade disputes, embargoes, epidemics or pandemics, sudden changes in customs duties, terrorist activities and political instability. These events could, in particular, result in delays or losses in the Group's product deliveries to its customers or in the supply of raw materials and could therefore have a material adverse effect on its sales and earnings. In addition, they could lead to increased costs for products manufactured by the Group as well as to higher safety costs and insurance premiums.

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. As Arkema gradually establishes production plants in the main geographical regions, this also secures local supplies to its customers present in the region and limits the flow of products between different regions.

In addition, 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.

2.1.6 Financial risks

Arkema is exposed to two types of financial risks: foreign currency risk and liquidity 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 Arkema's exposure to the associated risk.

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 subsidiaries' accounts that are denominated 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, at the latest 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, and the Financing and Treasury department is responsible for its implementation using simple derivatives. For further details, see notes 11.6.1 and 11.2 to the consolidated financial statements at 31 December 2020 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.

Arkema strives to mitigate the risk of lower competitiveness thanks to its strategy of achieving 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 11.3 and 11.6 to the consolidated financial statements at 31 December 2020 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 (including subordinated debt) to EBITDA ratio of less than 2;
- maintaining cash reserves in excess of €500 million;
- having a Euro Medium Term Note (EMTN) program, to facilitate access to bond markets;
- maintaining average maturity at over three years; and
- diversifying its sources of financing.

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 segments of the Specialty Materials platform, which each comprise two Business Lines encompassing one or several activities, and the Intermediates segment, which includes three activities, with each activity responsible for its own performance and the implementation of internal control procedures (see section 1.2 of this document);
- the corporate departments (or support functions), which assist the segments and activities in their area of competence, such as accounting, human resources, legal affairs, IT and procurement, and ensure coherence and optimization at the Group level (see section 1.3 of this document); and
- the subsidiaries, in which Arkema performs its business activities (for further details 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 and its two committees (the Audit and Accounts Committee and the Nomination, Compensation and Corporate Governance Committee ⁽¹⁾), supported by the experience and expertise of their members, 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.

(1) Three committees with effect from 20 May 2021 with the creation of the Innovation and Sustainable Growth Committee.

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, the head of Group Accounting and Consolidation, the head of IT 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 Group Safety and Environment 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 Group Accounting and Consolidation 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 2020.

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.

Arkema's internal control system meets the principle of the three lines of defense, as recommended by the IIA (Institute of Internal Auditors) and the IFACI (*Institut Français de l'Audit et du Contrôle Internes*). The first line is covered by all the operational functions, the second line by the support functions, including internal control, and the third by the internal audit functions.

The role of Internal Audit is notably 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 2020, the Internal Audit sub-department, made up of eight internal auditors, carried out the following 32 audits:

- 10 audits of industrial sites or R&D centers in Europe and North America;
- 17 audits of subsidiaries in Europe, Asia, Africa, North America and South America;
- 3 process audits in Europe, Asia and North America; and
- 2 audits of businesses in Europe and North America.

The audit program was impacted by the global health crisis, but 86% of planned audits were nevertheless completed. Half of the audits were carried out remotely.

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 sub-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 2020. Its performance is measured annually, by self- or peer-assessment, and recorded in the dedicated GRC (Governance, Risk and Compliance) tool.

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 business Conduct and Ethics Code put in place by Arkema, available on Arkema's website under the heading "Ethics". 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.

Segments, Business Lines, businesses, corporate departments and subsidiaries

Arkema is organized into segments as described in section 1.2 of this document. The segments of the Specialty Materials platform each comprise two Business Lines encompassing one or several activities, and the Intermediates segment includes three activities. Each activity coordinates the use of the resources required to meet the targets set in their respective areas and 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, business Conduct and Ethics Code, 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.

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 business Conduct and Ethics Code 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 business Conduct and Ethics Code, 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 described in section 4.4.2 "Compliance and ethics" of this document.

In addition 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 Arkema.

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 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, see section 2.1.3 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 sub-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, who is a member of the Executive Committee, and the Executive Committee reviews the results of the segments and their respective activities;
- the Group Accounting and Consolidation 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 Group Accounting and Consolidation 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 risks are grouped together and 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 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, legal proceedings, societal expectations and internal control,
- operational risks,
- project and innovation risks,
- economic and business risks, and
- financial 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:

- a Group Accounting and Consolidation department, which produces the consolidated financial and accounting information and ensures the reliability of the data constituting Arkema's financial information;
- a Controlling department, which 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 controlling

The Group Accounting and Consolidation department and the Controlling department define the financial principles and guidelines set out in the financial reporting manual and Arkema's management framework. The Group Accounting and Consolidation department 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 Controlling department. The budget represents a key benchmark for measuring the actual performance of the four segments and their respective businesses, the corporate departments and Arkema's subsidiaries as a whole; and
- 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 Controlling department prepares a consolidated report each month, by segment and by activity, based on the consolidated data provided by the Group Accounting and Consolidation department, 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 Group Accounting and Consolidation department and the 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 at 31 December to an audit. The quarterly information at 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 department and submitted to the Company's Board of Directors for approval.

At the end of each accounting period, the Group Accounting and Consolidation 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 representation letters, 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 joint periodic visits 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 2020, 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 damage 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 12, 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 risk exposure and the size of the site concerned. In 2020, the maximum total retention in the event of a claim was €20 million.

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

Transportation

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 Group’s production sites. They include, in particular, damage sustained 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 is €50 million with effect from 15 January 2020, with a deductible of €2 million.



**APPENDIX
DUTIES AND
OPERATING
PROCEDURES OF THE
BOARD OF DIRECTORS**

3

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 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 Directors responsible for managing the Company in line with the corporate strategy, monitor the implementation of this strategy, take decisions regarding major operations, 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.

In accordance with the AFEP-MEDEF Code recommendations, the Board of Directors reviews the diversity objectives within the Group's governance bodies, how such objectives are implemented and the actions taken to achieve them, as presented to it by executive management twice a year as part of its overall human resources review and, more specifically, its review of the career management plan. Additional information on these objectives, the implementation thereof and the results achieved is provided in sections 3.2.2.2 and 4.4.1.6 of this document.

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 own internal rules as updated most recently on 24 February 2021.

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. 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 videoconference or 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 convening notice if all members are present or represented. In accordance with its internal rules, in all cases permitted by law and if specified in the convening notice, 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 practices 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, whilst also taking the social and environmental challenges of its business into consideration;
- 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 they are a member, including their participation in the committees of these companies' Boards of Directors; 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 meetings of the Board of Directors and of the committees to which they have been appointed, as well as 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 convening notice 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 meeting 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 proposal 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 Board members therefore discuss these topics without his presence. Following the report on the annual assessment of the Board of Directors' operating procedures, the senior independent director shall hold an executive session from which the executive director and directors who are employees of the Group are excluded.

3.3.2.3 Activities of the Board of Directors

The Board of Directors met twelve times in 2020. The increase in the number of meetings compared to the previous year reflects the specific Covid-19-related environment and the planned disposal of the MMA/PMMA business. There was a high attendance rate at these meetings of 95% (as in 2019 and versus 97% in 2018). Regularly-scheduled meetings lasted around four hours, longer than in 2019, and the more exceptional, context-related meetings (notably about the pandemic and M&A activity) varied in length depending on the topic at hand.

The following table summarizes the individual attendance rates of directors at the meetings of the Board of Directors and its committees in 2020.

Directors	Board of Directors		Audit and Accounts Committee		Nominating, Compensation and Corporate Governance Committee	
	Attendance rate	Number of meetings	Attendance rate	Number of meetings	Attendance rate	Number of meetings
Thierry Le Hénaff	100%	12/12	-	-	-	-
Yannick Assouad	92%	11/12	-	-	-	-
Jean-Marc Bertrand	100%	12/12	-	-	-	-
Marie-Ange Debon	100%	12/12	100%	6/6	-	-
Ian Hudson	100%	12/12	100%	6/6	-	-
Alexandre de Juniac	92%	11/12	-	-	100%	4/4
Victoire de Margerie	92%	11/12	-	-	100%	4/4
Laurent Mignon	75%	9/12	-	-	-	-
Hélène Moreau-Leroy	100%	12/12	100%	6/6	-	-
Thierry Morin	100%	12/12	-	-	100%	4/4
Nathalie Muracciole	100%	12/12	-	-	-	-
Marc Pandraud	83%	10/12	-	-	-	-
Sue Rimmer ⁽¹⁾	100%	5/5	-	-	-	-
<i>Fonds Stratégique de Participations represented by Isabelle Boccon-Gibod</i>	100%	12/12	100%	6/6	-	-
TOTAL	95%	12	100%	6	100%	4

(1) Appointed on 3 July 2020.

The agendas of the Board of Directors' meetings included recurring annual topics as well as more specific topics, as follows:

Operations, strategy and risk management

Recurring annual topics

- review and approval of the strategy and main operational priorities presented during the annual seminar
- monitoring of the implementation of the 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 strategy (actions and results) for 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 2020

- various strategic projects: partnership with Nutrien Ltd. for the supply of hydrofluoric acid, monitoring of the construction of a bio-sourced polymer manufacturing plant in Singapore
- various M&A transactions: acquisition of LLP, disposal of the Functional Polyolefins and MMA/PMMA businesses
- definition of the Company's 2024 roadmap and targets and preparation of the Capital Markets Day of 2 April 2020
- risk review within the context of the Covid-19 crisis.

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 annual financial report, the management report and, more generally, the Universal Registration 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 2020

- analysis of the impact of Covid-19 on the Group
- approval of the proposal to reduce the 2019 dividend within the context of Covid-19
- approval of the Amendment to the 2019 Universal Registration Document
- authorization to issue green bonds
- approval of the new syndicated credit facility to refinance the existing syndicated credit facility
- authorization to renew the Euro Medium Term Notes (EMTN) program for a maximum amount of €3.5 billion
- changes in the policy on delegations of authority with respect to deposits, commitments and guarantees in accordance with article L. 225-35 of the French Commercial Code.



**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
- policy on the non-executive directors' compensation
- 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 2020

- self-assessment of the Board of Directors' operating procedures
- renewal of Thierry Le Hénaff's term of office as Chairman and Chief Executive Officer
- reappointment of KPMG Audit as statutory auditor
- determination of the conditions of the share capital increase reserved for employees and recording of its completion
- acknowledgment of the fulfillment of the performance conditions applicable to the 2017 performance share plan
- 2020 performance share plan
- changes in the duties of the senior independent director
- changes in the policy governing the compensation of the Chairman and Chief Executive Officer within the scope his new term of office
- postponement of the new amount of the annual fixed compensation and the target and maximum amounts of the variable compensation of the Chairman and Chief Executive Officer within the context of Covid-19
- changes in the directors' total compensation and compensation principles
- postponement of the effective date of the directors' compensation principles within the context of Covid-19
- decision to hold the annual general meeting of 19 May 2020 behind closed doors.

**Corporate social
responsibility****Recurring annual topics**

- Group's situation in terms of safety and the environment (particularly the climate)
- Group human resources policy, especially its diversity and talent management policy
- Group ESG approach and roadmap
- non-financial information statement and duty of care.

Specific topics in 2020

- detailed review of ESG aspects within the scope of recent acquisitions and investments.

In 2020, the Board of Directors demonstrated responsiveness from the start of the Covid-19 crisis, meeting regularly (five meetings between March and May 2020). Thanks to well-functioning videoconference systems, the Board of Directors was able to monitor the crisis closely and help the Chairman and Chief Executive Officer and the Executive Committee manage the situation in the best possible manner. In particular, the Board received regular updates on the situation, both from employees and other stakeholders, and on more operational developments.

At each meeting, the Chairman updates the Board on the operations 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 Board meeting.

Once a year, the Board of Directors also dedicates a day to reviewing Arkema's strategy in the presence of the Executive Committee members and the head of R&D (CTO). 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 typically 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 its senior executives, and among senior management in general. Each year, it reviews the policy established by executive management in this regard, including the objectives, actions implemented and results achieved. For further details on the human resources diversity policy, see sections 3.2.2.1 and 4.4.1.6 of this document.

Lastly, the Board of Directors, based on the preparatory work of the Nominating, Compensation and Corporate Governance Committee, and in complete cooperation with the Chairman and Chief Executive Officer, reviews every year with careful attention the succession planning for the Chairman and Chief Executive Officer and the members of the Executive Committee, as well as the career management policy for Group executives. This work is used in particular 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. Within this context, it has set out the conditions for replacing the Chairman and Chief Executive Officer, notably in the event of an emergency (so-called "tramway" scenario), and the key principles for his long-term succession.

Since the beginning of 2021, the Board of Directors has met three times, with an attendance rate of 95%. Beyond the recurring topics such as the approval of the 2021 annual budget, the approval of the annual consolidated and Company financial statements for 2020, the proposed allocation of profit and, more generally, the preparation of the annual general meeting including approval of the proposed resolutions, these meetings focused in particular on:

- the review of achievements and strategy in terms of human resources and talent management;
- the execution of the MMA/PMMA disposal;
- the distribution of a dividend of €2.50 per share and the planned launch of a share buyback program totaling €300 million;
- the examination and review of the financial performance and achievements of the Advanced Materials, Coating Solutions and Intermediates segments;
- the Chairman and Chief Executive Officer's 2021 compensation policy;
- directors' compensation in accordance with the compensation policy applicable in 2020, as well as the compensation paid or awarded to the Chairman and Chief Executive Officer in 2020;
- the Executive Committee members' compensation for 2020 and their compensation policy for 2021;
- the review of the Group's social and environmental challenges as part of the non-financial information statement pursuant to articles L. 225-102-1 and L. 22-10-35 of the French Commercial Code and the report on the effective deployment of the *plan de vigilance* (duty of care plan);
- the review of the Group's 2021 insurance policy;
- the annual assessment of the operating procedures of the Board of Directors and its committees performed by means of a self-assessment questionnaire;
- the set-up of the Innovation and Sustainable Growth Committee;
- the proposed appointments of directors to replace the directors whose terms of office are due to expire at the annual general meeting of 20 May 2021, and proposed changes to the composition of the committees; and

- the changes and the updates to the rules of procedures of the Board of Directors and the committees, in particular as a result of decisions regarding their composition.

In light of the health crisis, the Board of Directors' annual on-site meeting had to be canceled.

The senior independent director held an executive session as provided for by the internal rules, following the meeting held on 24 February 2021.

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 questionnaire. Every three years in principle, a formal 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 the full 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).

For 2020, the annual assessment of the Board of Directors was carried out on the basis of a self-assessment questionnaire prepared by the Nominating, Compensation and Corporate Governance Committee, which notably included questions about the Board of Directors' composition, its collective performance during the year, the individual contributions of each director and the quality of the Board's discussions. The assessment was discussed during the Nominating, Compensation and Corporate Governance Committee meeting of 16 February 2021 and voted on by the Board meeting of 24 February 2021. The report on the self-assessment shows that the directors continue to be very satisfied with the overall operating procedures of the Board, and even more so during 2020, with even greater engagement by the Board in the context of the pandemic and meetings being held online, which ensured a strong attendance rate among directors. Within this context, the Board of Directors assessed the information provided on the impacts of Covid-19, the strategy development and implementation (e.g., the disposal of the Functional Polyolefins and PMMA businesses in very favorable conditions), and the even more balanced participation of the directors in the discussions. As such, the Board of Directors considers 2020 to have been a year of progress: the main recommendations made following the previous assessment were all taken into account, in particular the proposed appointments of Thierry Pilenko and Ilse Henne as directors, enhancing the Board's international dimension, and the decision to set up a new Innovation and Sustainable Growth Committee, which strengthens the Board's contribution to ESG matters.

As the most recent third-party assessment of the Board of Directors' operating procedures was in early 2019, for the year ended 31 December 2018, a similar formal assessment will be performed in early 2022, for the year ended 31 December 2021. For further details on the results of the assessment performed in early 2019, see section 3.3.2.4 of the 2018 Reference Document.



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