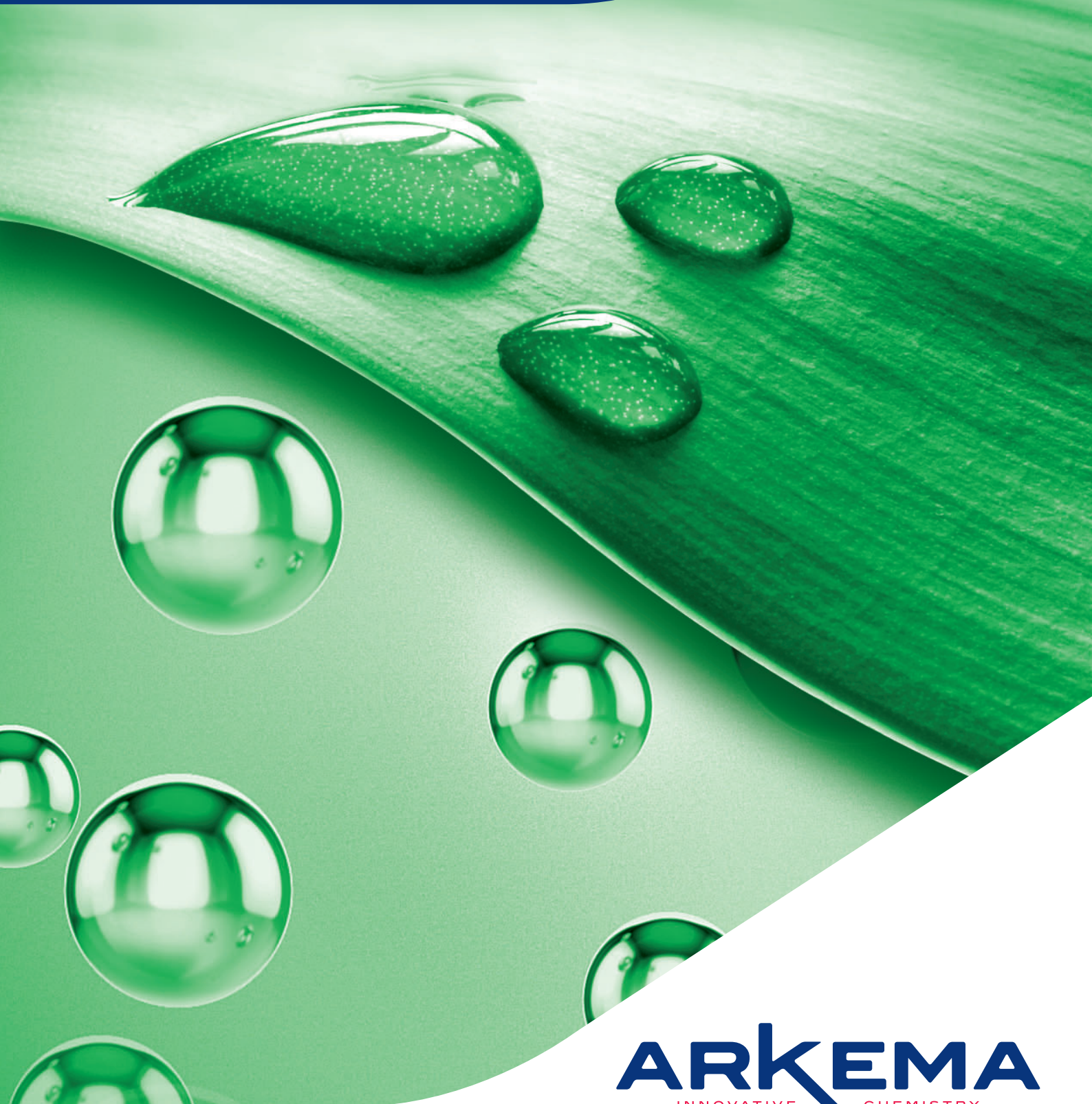


2014 ARKEMA SOCIAL RESPONSIBILITY

COMMUNICATION ON PROGRESS

Extract from 2014 Reference document



ARKEMA
INNOVATIVE CHEMISTRY

ARKEMA IN 2014

“Arkema has committed to the United Nations Global Compact, which together with the Responsible Care Initiative are the founding principles on which Arkema builds its sustainability approach”

Thierry Le Hénaff
Chairman and CEO

€5,952 m
Sales

13.2%
EBITDA margin

14,280
Employees

Presence
in **40** countries

€784 m
EBITDA

€470 m
Capital expenditure

89
Production sites

Acrylic site in Taixing (China)

MESSAGE

OF THE CHAIRMAN AND CEO



Dear stakeholders,

Beyond the major steps achieved in the Group's transformation in 2014 and beginning of 2015 with the start-up of our Thiochemicals platform in Malaysia and the acquisition of Bostik, the number 3 worldwide in adhesives, 2014 has been a positive year for the implementation of our Corporate Social Responsibility (CSR) vision and the commitments we have made in that respect.

Our CSR vision is centered on 5 core commitments: be a top quartile performer in safety in the chemical industry, reduce the environmental footprint of our activities, place sustainable development solutions at the heart of our innovation policy, encourage openness and dialogue with all our stakeholders, promote the individual and collective development of our employees.

This CSR vision has been further strengthened in 2014 with several new actions focused on the CSR management process and on product innovation for sustainable development which resulted in the following significant achievements.

First, Arkema has committed to the United Nations Global Compact, which together with the Responsible Care Initiative are the founding principles on which Arkema builds its sustainability approach.

In line with the Global Compact Principles, the global implementation of human rights and labor rights policy and management system within the Group, Arkema also joined the "Together for Sustainability" supplier assessment and audit platform, thus confirming its willingness to continuously improve the social responsibility within its supply chain.

We have also achieved an outstanding breakthrough related to climate change with the reduction of our greenhouse gas emissions by 30% compared to 2012.

Our innovation efforts are illustrated through two new examples of solutions dedicated to sustainable development.

In the area of water treatment, we developed a new generation of Kynar® polymers for ultrafiltration membranes purifying water by trapping particles from 1 to 10 micrometers more effectively.

We also launched a new thermoplastic resin under the brand name Elium® which can replace metal parts in certain applications in the automotive industry, thus allowing savings in gas consumption and CO₂ emissions. In addition, this thermoplastic resin, unlike thermoset composites, enables product recyclability.

Beyond these examples, I firmly believe that implementing an ambitious Corporate Social Responsibility policy creates value for both stakeholders and the Group.

This report presents our ambition and commitments in this field and details the governance, policies, actions and performance of the Arkema Group in accordance with the principles of the United Nations Global Compact and the Responsible Care Initiative.

I sincerely thank you for your continued support and for your interest in our sustainable performance.

Thierry Le Hénaff
Chairman and CEO

INNOVATION

10
R&D centres

1,200
researchers

186
patent applications

€155 m
budget

R&D centre in Oise
(France) >

ARKEMA in
2014 THOMSON REUTERS
TOP 100
GLOBAL INNOVATORS
for the 4th consecutive year



Kepstan® PEKK

New ultra high performance polymer with applications in the fields of carbon fiber composites and 3D printing



Functionalized Kynar®

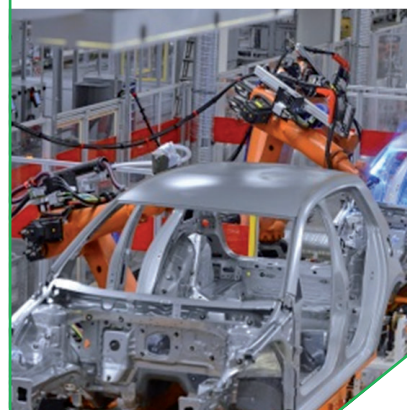
New binders for batteries complying with the new regulations for electrical vehicles



Elium®

ELIUM
BY ARKEMA

First range of liquid thermoplastic resins combining the resistance of a composite with the recycling possibilities of a thermoplastic



SUSTAINABLE GROWTH

5 COMMITMENTS

		2014	2013	2020 TARGETS		
1		Safety				
		Total recordable injury rate (TRIR)	1.9	2.8	1.7	
		% of sites implementing peer observation	77 %	62 %	100 %	
		% of AIMS* audited sites	78 %	62 %	100 %**	
2		Environment				
		Emissions of greenhouse gases	Base 1 in 2012***	0.70	0.93	Versus 2012 -30 %
		Emissions of Volatile Organic Compounds****	0.79	0.86	-20 %	
		Chemical Oxygen Demand	1.03	1.00	-20 %	
		Net purchases of energy	0.99	1.02	-1.5 % / year on average	
3		Innovation in sustainable development				
		Number of patent applications filed during the year for solutions in sustainable development	81	79		
		% of sales from products made from renewable raw materials	13 %	n.a		
4		Stakeholders				
		% of ARKEMA's sites taking part in the Common Ground® programme	90 %	81 %		
5		Human resources				
		Average number of training hours per employee	34	23		



* Arkema Integrated Management System encompasses ISO 9001, ISO 14001 and OHSAS 18001 requirements

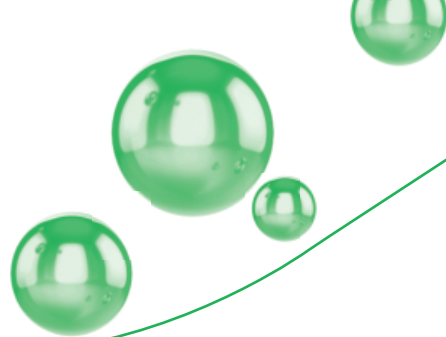
** In the last three years

*** Intensive indicators called EFPI (Environmental Footprint Performance Indicators) for which the computation procedure is described in the methodology note in section 2.6 of this reference document

**** Excluding first declaration of the Hengshui site in China

2014 HIGHLIGHTS

SAFETY	ENVIRONMENT	INNOVATION	STAKEHOLDERS	HUMAN RESOURCES
Launch of the Arkema Safety Academy <p>Safety training for all Group's employees</p> 	Strengthening of Arkenergy <p>Definition of a capital expenditure envelop specifically dedicated to projects improving energy efficiency</p> <p>Implementation of ISO 50001 as a management system for energy in Europe and Asia</p>	Kynar® development <p>New generation of Kynar® for ultrafiltration membranes insuring a stable and perennial water flow</p>	Integration to the TFS initiative <p>ARKEMA joins Together for Sustainability confirming its commitment to sustainability in procurement and strengthening the selection process of its suppliers</p> 	Employee share ownership <p>Successful share capital increase reserved for employees with an average participation rate of 41% in the world and 63% in France</p>



CORPORATE SOCIAL RESPONSIBILITY

2.1 BE A TOP QUARTILE PERFORMER IN SAFETY IN THE CHEMICAL INDUSTRY **AFR** 10

- 2.1.1 General industrial safety and environment policy 10
- 2.1.2 Safety records 13

2.2 REDUCE THE ENVIRONMENTAL FOOTPRINT OF THE GROUP'S ACTIVITIES **AFR** 14

- 2.2.1 General policy in terms of reducing the environmental footprint 14
- 2.2.2 Managing products responsibly (Product Stewardship) 27

2.3 PLACE SUSTAINABLE DEVELOPMENT SOLUTIONS AT THE HEART OF ITS APPROACH TO INNOVATION AND IN ITS PRODUCT RANGE 30

- 2.3.1 Develop products for new energies and therefore contribute to preserve fossil resources 30
- 2.3.2 Fight against global warming 31
- 2.3.3 Develop products for improving water quality and access to water 32
- 2.3.4 Use of renewable raw materials to preserve fossil resources in the face of growing population needs 33
- 2.3.5 Development of recycling, reuse and extended product life solutions to preserve fossil fuel resources in face of growing population needs 34

2.4 ENCOURAGE OPEN DIALOGUE WITH ALL ITS STAKEHOLDERS **AFR** 35

- 2.4.1 Territorial, economic and social impact of the Group's activity 35
- 2.4.2 Relations with stakeholders 36
- 2.4.3 Fair practices, rejection of corruption 38
- 2.4.4 Subcontracting and suppliers 40

2.5 PROMOTE THE INDIVIDUAL AND COLLECTIVE DEVELOPMENT OF ALL ITS EMPLOYEES **AFR** 41

- 2.5.1 Employment 42
- 2.5.2 Training and individual development 47
- 2.5.3 Organisation of the working week 49
- 2.5.4 Dialogue with social partners 49
- 2.5.5 Health at work 51
- 2.5.6 Diversity and equal opportunities, Equal treatment 53
- 2.5.7 Promotion and compliance with the provisions of the core conventions of the World Labour Organisation 56

2.6 METHODOLOGY NOTE **AFR** 57

- 2.6.1 Methodology note on environmental and safety indicators 57
- 2.6.2 Methodology note on social and societal information/indicators 59

2.7 INDICATORS **AFR** 61

2.8 FAIRNESS OPINION OF AN INDEPENDENT THIRD PARTY PURSUANT TO ARTICLE L. 225-102-1 OF THE FRENCH COMMERCIAL CODE **AFR** 65

In a world that faces several economic, environmental and social challenges, Corporate Social Responsibility (CSR) contributes to creating value both for the society in which we live and in which future generations will live, as well as for the Group.

CSR objectives fulfil the expectations of the Group and its stakeholders. They are true guarantors of sustainable and responsible growth for the Group.

ARKEMA'S CSR ambition and commitments

ARKEMA's CSR commitments concern five major areas:

- **Being a top quartile performer in safety in the chemical industry**

The Group's industrial safety initiative is rolled out around the world and involves three complementary themes: technical, organisational and human. Hence, the introduction of a common "safety culture" throughout the Group and the priority given to safety have enabled the continuous improvement of the Group's safety performance since its spin-off.

- **Reducing the environmental footprint of its activities**

Reducing the Group's environmental footprint is an objective shared by all Group employees. This objective depends on three types of actions: limiting the emissions of the various business segments, reducing consumption of natural resources and developing the use of renewable resources.

The Group also ensures that its products do not harm the health or the safety of people, or their environment.

- **Placing sustainable development solutions at the heart of its approach to innovation and in its product range**

The Group puts its R&D products and marketing teams at the service of sustainable development and the challenges that the planet faces. Accordingly, the Group creates innovative solutions in support of new energies, lightweight materials, the fight against climate change, access to water, and the use of biosourced raw materials. The Group's R&D policy is described in section 1.4 of this reference document.

- **Encouraging openness and dialogue with all its stakeholders**

The Group endeavours to dialogue with all its stakeholders on its activities and products. Accordingly, the Group has developed its Common Ground® initiative in order to establish relationships based on mutual understanding and trust with people living near its facilities, various associations, and the world of education, to get to know each other better. The Group, with its suppliers, also adopts a responsible behaviour based on the desire to develop balanced sustainable relations relying on trust.

- **Promoting the individual and collective development of all its employees**

The Group's employees, unique in their know-how, profession, nationality, role and personality, together make up a community. The Group's employment policies around the world are focused on two major concerns: the individual and collective development of its employees and social development through actions that focus on improving conditions for all in the workplace.

Every Group entity aims to contribute to achieving the Group's CSR ambition on the basis of the above-mentioned areas as part of a continuous improvement initiative. The rules relating to the collection and consolidation process for the CSR data featured in this chapter are set out in particular in section 2.6 of this reference document.

By carrying through these commitments, the Group will achieve its ambition to be a recognised contributor to the sustainable development of the world around us, and to stand among the best chemical producers in the world not only through its economic performance, but also through its social, societal and environmental performance.

CSR players and governance

To deliver on its CSR ambition, the Group set up on 2 April 2012 a Sustainable Development division comprising the Product Safety and Environment and Sustainable Development functions. This division reports directly to the Group Industry Executive Vice-President, a member of ARKEMA's Executive Committee ("Comex").

Moreover, a CSR steering committee was set up in October 2012, chaired by the Industry Executive Vice-President, and which includes the Human Resources and Communication Executive Vice-President as well as various functional directors, all actively involved in the Group's CSR policy. This committee is charged with overseeing actions conducted as part of the Group's CSR policy as well as setting out proposed CSR action plans which are put forward to Comex. The steering committee meets twice a year.

ARKEMA's CSR goals, proposed actions and those already implemented, the main indicators and the 2020 targets in terms of safety and environment were defined and validated in the course of four Comex meetings held since December 2011.

The Sustainable Development Vice-President also presented the Group's CSR organisation and ambition to the Audit and Accounts Committee at the end of 2012. This presentation in particular was an opportunity for reviewing the procedures in place to ensure the Group's compliance with the regulatory requirements of extra-financial reporting, in particular the mandatory social and environmental information which the Company is required to provide, as well as CSR data on extra-financial reporting

not required by French regulations, and for presenting the Independent Third Party Body charged with verification of the data as appointed by Arkema's Chairman and Chief Executive Officer.

All 2014 indicators featured in chapter 2 of this reference document were subject to confirmation by the Independent Third Party Body, as indicated in its advisory notice provided by this body featured in section 2.8 of this reference document.

Every year, the head of Sustainable Development, and where necessary, the representative of the Third Party Body, presents to the Audit and Accounts Committee the content of its extra-financial data audit, as well as the body's findings to be included in the advisory notice provided to the Company's annual general meeting at the same time as the Board of Directors' report. This presentation is given just before the Board of Directors' meeting called to draw up its report to the general meeting, which includes all social and environmental information as well as the Third Party Body's advisory notice.

2020 targets

In 2013, ARKEMA decided to bolster its sustainable development commitments, and so set out four new environmental objectives for 2020. These objectives, which concern reductions in emissions to air, greenhouse gas emissions, emissions to water and net energy purchases, reflect ARKEMA's resolve to minimise its environmental footprint and boost its operational excellence.

These four environmental objectives complement the three 2020 safety objectives set by the Group in 2012, the main one being a reduction in TRIR (total recordable injury rate). In view of the continuous progress being made by the Group, and confirming its ambition in the area of operational excellence, the TRIR target for 2020 has been reduced from 2.0 to 1.7.

Standards and fundamental charters

As a participant in its international initiative, ARKEMA supports the ten principles of the United Nations Global Compact on Human Rights and International Labour Standards, on the protection of the environment and on fighting corruption.

ARKEMA values correspond to the fundamental principles contained, in addition to the Global Compact, in the 1948 Universal Declaration of Human Rights, the International Labour Organisation and the guiding principles of the OECD for multinational companies.

ARKEMA also complies with the principles of the Responsible Care® Global Charter adopted by the International Council of Chemical Associations (ICCA) globally, and for which it signed the declaration of support on 16 November 2006.

These principles are included in the Group's standards, such as its Code of Ethics and Business Conduct, its Health, Safety, Quality and Environment Charter and its Energy Policy.

2.1 BE A TOP QUARTILE PERFORMER IN SAFETY IN THE CHEMICAL INDUSTRY

2.1.1 GENERAL INDUSTRIAL SAFETY AND ENVIRONMENT POLICY

Safety and the protection of health and the environment are central to the Group's objectives in conducting its operations, with a permanent focus on improving its performance in these areas.

The Group's Health, Safety and Environment policy (HSE) has been continuously strengthened since its creation in order to incorporate the applicable regulations as well as the Group's own requirements. The Group has formally expressed its fundamental requirements in the Health, Safety, Environment and Quality Charter and in a global reference resource, the HSE manual, set up by the Group at the time of its creation, which form the basis for HSE management systems in all Group entities.

The Group's HSE policy is also an integral part of its approach to sustainable development, which is based on the firm belief that its long-term growth partly depends on the way it assumes its responsibilities in the areas of social relations, safety, security, and the environment.

Accordingly, the Group has adopted the Responsible Care® Global Charter as defined by the International Council of Chemical Associations (ICCA) globally and supported by the Association of International Chemical Manufacturer (AICM) in China, the European Chemical Industry Council (CEFIC) in Europe and adopted by the majority of national associations, including the *Union des industries chimiques* (UIC) in France. The Responsible Care® initiative is a voluntary initiative undertaken by the global chemical industry that extends beyond regulatory compliance. The initiative was first launched in the 90s in the field of health, safety, and industrial environment; it was subsequently extended to product stewardship.

In 2006, the ICCA launched the Responsible Care® Global Charter, to enhance the provisions of Responsible Care®, by strengthening sustainable development, product stewardship, measurable performance, and audit of procedures by third-party.

ARKEMA signed the original declaration of support for the Responsible Care® Global Charter on 16 November 2006 and the new Responsible Care® Global Charter on 10 December 2014.

In order to achieve its sustainable development commitments, ARKEMA decided to set three 2020 safety objectives primarily reflecting its resolve to improve its safety performance and strengthen its operational excellence. These objectives are as follows:

- to reduce its total recordable injury rate (TRIR) to 1.7 by 2020;

In view of the continuous progress being made by the Group and confirming its ambition in the area of operational excellence, the long term TRIR objective has been reduced from 2.0 to 1.7;

- to extend its peer observation programme to 100% of its sites by 2020; and
- to audit 100% of its sites in accordance with its AIMS integrated master framework by 2020.

2.1.1.1 GROUP ORGANIZATION TO TAKE ACCOUNT OF INDUSTRIAL SAFETY AND ENVIRONMENT ISSUES

The Group's environment and industrial safety policy is rolled out around the world and applies to all Group subsidiaries as well as in every country in which the Group is present.

Direction Sécurité Environnement Groupe (DSEG), the Group's Safety Environment division based at the Group's headquarters, has a global remit, and operates through safety and environment experts in every region.

2.1.1.2 AN INITIATIVE BASED ON THREE PRIORITY AREAS

The Group's approach to safety revolves around three areas: Prevention of safety, environment and pollution risks, and guidelines regarding management as well as safety and environmental culture.

Prevention of safety, environment and pollution risks

The assessment of risks on the Group's industrial sites is carried out through systematic studies of (i) the manufacturing processes, (ii) operating conditions on the existing sites, (iii) transport operations (particularly those involving hazardous products), (iv) the design and construction of new installations, (v) changes to existing installations, and (vi) health and safety in the workplace, and (vii) the impact on the environment, while respecting applicable regulations.

The identification of these risks, their ranking through a qualitative and quantitative approach based on simulation models and a network of experts, and preventive measures designed to reduce the effects of these risks and the likelihood of them occurring, are all covered by the technical and organisational resources put in place for the Group's industrial sites, as well as for the transport of hazardous substances.

The Group pays careful attention to the analysis of risks connected with its business activities, particularly in the case of Seveso-rated sites (or their equivalent) for which the Group demands that the level of safety requirements increases in line with the identification of potential risks. Similarly, the Group lends much importance to feedback (both within and outside the Group) regarding in particular the level of incidents and accidents as well as best practice in industrial risk management.

At the time of the design of a new production unit or when a significant extension to an existing production unit is made, the best options for improving industrial safety are sought. In addition, the Group regularly makes improvements to its existing production units. Therefore, the Group's capital expenditures allocated to safety and the environment and to maintaining the plants up to standard totalled €211 million in 2014 (against €195 million in 2013).

In Europe, at the date of this reference document, 32 of the Group's production sites were being monitored with extra vigilance, and were subject to European directive (EC) 96/82 of 9 December 1996, which deals with the control of hazards related to major accidents involving hazardous substances, and called the "Seveso II directive". This directive requires, in particular, the introduction of safety management systems and the regular updating of risk assessment surveys, whose conclusions can lead to additional risk-prevention requirements for the companies operating the sites.

Law No. 2003-699 of 30 July 2003 and its implementing decrees have strengthened the obligations imposed in France on companies operating Seveso sites, by laying down the principle that the government draws up and implements "plans for the prevention of technological risks" (PPTRs), the aim of which is to control urban development around risky sites and limit the effects of accidents that could occur there. At the end of 2014, 16 sites operated by the Group in France were subject to PPTRs. The Group will be required to contribute to the funding of any measures related to these PPTRs. Furthermore, the ministerial decree of 29 September 2005 concerning the evaluation and consideration of the probability of occurrence, the kinetics, the intensity of the effects, and the severity of the consequences of potential accidents in hazard studies for classified facilities subject to authorisation, will also entail by 2018 the introduction of additional risk control measures at the 16 sites mentioned above for which a PPTR is required.

As regards the reliability of its industrial facilities, the Group has fully endorsed the risk management objectives relating to industrial equipment (plants and pipes) as part of the nationwide industrial facilities upgrading plan. Furthermore, ARKEMA has been contributing to the work of the various working parties in this regard.

In the United States, the control of risks of industrial accidents is regulated, in particular, within the framework of the Superfund Reauthorisation Act (SARA), Risk Management Process (RMP) and the Emergency Planning and Community-Right-to-Know Act (EPCRA). The latter, in particular, requires companies to inform the government authorities when hazardous products, above a certain quantity, are being handled or stored, and requires companies storing such products to have emergency plans and procedures in place. Other regulations at federal, state or local

levels govern certain specific aspects of the storage of chemical products, the safety of workers when handling stored products, and the storage of highly hazardous products.

The crisis management procedures in place in Group facilities are broadly based on the Group Crisis Management directive covering the management of potentially critical situations in the area of Health, Safety and the Environment. These procedures provide responses to crises and potential crises. They include a year-round on-call system that makes it possible to react to a potentially critical incident and its causes and to constitute a crisis management team. Furthermore, the Group runs "crisis management and communication" training courses as well as exercises to simulate crises and the constitution of crisis management teams.

Management reference master resource: AIMS, the all-in-one audit

The Arkema Integrated Management System (AIMS) reference master resource brings together within a single audit all the audits conducted by the Group concerning safety, environment and quality. It includes the Group's own requirements as well as those featured in standards endorsed by the Group (ISO 9001, ISO 14001 and OHSAS 18001). This "all-in-one" approach has a dual benefit: being part of the Group's culture, and ensuring consistency for all its safety, environment and quality management initiatives. In order to obtain external certifications, AIMS audits are conducted by mixed teams made up of Group auditors as well as auditors from a third party accreditation body. They are conducted every three years and complemented by follow-up audits every year. This new audit method will be extended to all of the Group's European sites. In the United States, the first audits based on this reference master document were conducted in 2011, and in China, in 2012.

In 2014, 78% of the Group's sites had an AIMS audit, versus 37% of sites in 2012 and 62% in 2013.

The target by 2020 is for 100% of the sites to have had an AIMS audit in the last three years.

Now, 60% of Group sites are OHSAS 18001-certified (compared to 34% in 2012 and 54% in 2013), on a global basis. The figures are 62% in Europe, 63% in America and 50% in Asia.

Meanwhile, every year the Group conducts a large number of audits other than the AIMS audits, including:

- operational safety audits: construction site audits within the past three years, pre-startup reviews, operational safety audits on topics such as Mechanical Integrity and Explosive Atmosphere issues, and simplified AIMS for smaller sites;
- process safety audits: these audits include, among other things, fire safety, post-incident audits and the review of risk analyses;
- supplier and logistics audits: transport companies and off-site warehouses are visited and assessed. These audits are in addition to the evaluations conducted by third parties such as the Safety & Quality Assessment System (SQAS) for land transport, the Chemical Distribution Institute (CDI) for maritime transport, and the European Barge Inspection Scheme (EBIS) for river transport. Some packaging is also verified; and

- safety support action: this action is conducted with a number of sites and entails sharing their analysis of their accident records and HSE activities with the sites' management teams. The initiative also includes work on drawing up and following up action plans.

The Feedback programme entails the sharing of experience regarding relevant incidents in order to prevent their recurrence. This sharing of experience takes place on a global scale, through various networks (geographical, professions, technologies). Through these networks, any significant incident triggers a safety alert and the implementation of corrective actions on Group sites that might encounter a similar incident.

Safety Culture: training, information for employees and tools for safety and industrial environment

The behaviour-based approach represents a key component in risk prevention. The development of a safety culture raising everyone's awareness of their responsibility and the importance of their behaviour lies at the heart of the Group's initiative. To develop a safety culture shared by all employees, the Group makes use of various tools: The "Safety in Action" programme, the "Essentials" and field activities (cross-matching observations, flash audits, planned general inspections, safety tours, field safety audits etc.) and "human and organisational safety factors" and "Safety Culture and Leadership" training courses.

The Group also strengthens its safety culture by running training courses as part of the "Arkema Safety Academy", which include modules for HSE managers or relating to crisis management, behaviour and the human factor.

HSE general training

As part of the induction of new recruits, general induction on site, and workstation training plans, as well as training initiatives for existing employees, HSE training is a priority. HSE managers attend specialist training, country by country, within or outside the Group. They also regularly take part in HSE conventions.

In 2014, the number of training hours recorded in entities in which the Group has a minimum 50% stake and which employ over 30 people, which accounts for 93.9% of ARKEMA's total workforce, amounted to 150,158 hours, i.e. 17 hours of training per year per safety trained employee. The number of employees having attended at least one safety training session over the year (excluding e-learning) is 8,776, representing 65% of ARKEMA employees in entities in which the Group has a minimum 50% stake and which employ over 30 people.

In addition, 4,263 people have taken an e-learning course on safety, representing 32% of ARKEMA employees in entities in which the Group has a minimum 50% stake and which employ over 30 people.

These e-learning courses deal with safety related topics such as "Gestures and postures", "Moving on foot", "Explosive Atmospheres (ATEX)", "Legionella", "Equipments under pressure", "Regulations for labelling hazardous products" and "Transporting hazardous substances". They will be followed by other e-learning

courses on "Personal Protective Equipment" (PPE), "Security", "Root cause analysis" and "Work permits".

2014 was also the year that the Arkema Safety Academy programme will be launched and will be gradually rolled out. This programme is intended for all Group employees. Its objective is to help share safety issues and challenges, policy and tools at Group level. For further details, see paragraph 2.5.2.4 in this reference document.

The Safety in Action programme

The Group is committed to achieving an ambitious programme to inform and mobilise its personnel to encourage and support changes in behaviour. This programme reflects a will to establish relentless vigilance as regards safety. It emphasises individual and collective commitment to taking action at individual team and workstation level. The programme is based in particular on two areas targeting exchange and communication, namely:

- the production of "Site Safety" films which help deliver information on safety instructions applicable on the site systematically, to all visitors; and
- the organisation of "Safety High Points" which help generate regular debates on topics related to safety and conclude with the construction of action plans specific to each work context, as well as the definition of areas for improvement at a team level.

The Essentials

The 14 "Essentials" are simple and clear safety rules corresponding to everyday situations and derived from feedback. They must be known and applicable to everyone in an exemplary manner, with no allowance for compromise, across all Group sites. Employees are invited to suggest improvements that facilitate the application of a rule, and to report all substandard situations. Any employee can intervene with anyone else, whatever their position, whenever they encounter a breach of the rules. Three "Essentials" are rolled out per year, and each includes a specific campaign and actions over a three-month period to help every employee become familiar with the rules.

Field activities

The principle of peer observation involves observing the behaviour of others in risky situations in order to raise awareness of risks and therefore reduce the number of occupational accidents. It capitalises on positive experiences and a collective search for solutions to improve practices. Using a structured observation method, each site implements the initiative in a way that best suits their own specific features (type of risks and nature of the activities). Personnel with similar qualifications are then encouraged to observe each other while carrying out their duties on the site. The peer observation method helps identify best practice and deviations from these practices, as well as risky situations. This principle has been implemented successfully in the United States and is being rolled out in Asia and in the major European countries in which the Group operates; it is gradually being developed at every Group production site.

In 2014, 77% of the sites put in place this programme intended to improve safety through peer observation, against 47% in 2012 and 62% in 2013.

The target by 2020 is for the programme to be extended to 100% of the Group's sites.

To move on from a safety discipline culture to a safety commitment culture, ARKEMA has taken up the development of an initiative in place in the United States that was first devised in Canada. Called "SafeStart®", this initiative consists of observing oneself and other people to identify critical states (rushing, frustration, fatigue and complacency) that can lead to critical errors (eyes not on task, line of fire, mind not on task, loss of balance, traction or grip) transforming minor risks into major risks. Critical error reduction techniques are used to continuously improve accident prevention.

Flash audits or mini-audits are short (in general 20 to 30 minutes long), and are a new Group-wide tool designed to facilitate the collection of safety data. They must include a discussion between the auditor and the audited in order to encourage commitment to changing safety behaviour. They help review specific problems, including a review of compliance with the "Essentials", an evaluation of a problem specific to a production plant and an examination of the implementation of a Group priority action. Still

under development, this tool has given satisfaction on the sites in which it has been tested.

Planned general inspections are conducted regularly with a frequency that varies from site to site (monthly or quarterly) to help check the technical conformity of the plant and equipment relative to predefined standards and levels of requirements.

The safety round is a field activity designed to show the commitment and support of the management to a plant's Health Safety Environment Quality (HSEQ) policy. It also provides an opportunity for the management and the site personnel to meet. It is neither an audit nor a check, but rather a communication tool for risk prevention and greater safety awareness.

Field safety audits to appraise external companies help evaluate continuously and over the long term *in situ* external companies in terms of their safety culture and commitment. This monitoring tool is also used to check HSE recommendations on major projects and promote a safety and risk prevention mindset during turnarounds.

As part of the Group's safety policy and the improvement of its safety records, communication on the subject has been emphasised to reaffirm ARKEMA's commitment, through a slogan and the displaying of safety records on each site.

2.1.2 SAFETY RECORDS

The Group's safety policies, based on the three areas described in paragraph 2.1.1.2 of this reference document, enable the Group to improve its safety record.

The following table presents the frequency of occupational accidents within the Group in number of accidents per million

man-hours, established according to the methodology featured in section 2.6 of this reference document, for all Group employees and the personnel of sub-contractors present on ARKEMA sites for the years 2012, 2013 and 2014.

	2014	2013	2012
Lost-time accidents*	1.1	1.6	1.9
Total recordable accidents	1.9	2.8	3.4

* "Lost-time accident" refers to any event causing bodily injury or psychological shock to an employee in the course of his/her duties and resulting in time off work.

The Group's target is to achieve a 1.7 TRIR rate (total recordable injury rate) by 2020. In view of the continuous progress being made by the Group, and confirming its ambition in the area of operational excellence, the long-term TRIR objective has been reduced from 2.0 to 1.7.

As of 2014, the number of accidents had been reduced to less than two per million man-hours.

For the record, the Group's frequency rates in 2005 were 5.3 for lost-time accidents, and 11.3 for accidents with and without lost time.

The severity of accidents is established by the rate of total recordable accidents with lost time.

Concerning only ARKEMA employees, 46 of them were victims of accidents recorded for the purposes of calculating the TRIR in 2014, 25 of which with lost time, out of a total global headcount of 14,280. This number should continue to decrease over the coming years.

2.2 REDUCE THE ENVIRONMENTAL FOOTPRINT OF THE GROUP'S ACTIVITIES

2.2.1 GENERAL POLICY IN TERMS OF REDUCING THE ENVIRONMENTAL FOOTPRINT

Committed to continuous improvement, and over and above essential compliance with regulations, ARKEMA has included environmental protection in its management system. Accordingly, reducing its footprint on the environment is one of the five objectives that the Group has set itself as part of its CSR initiative. To achieve this, the Group adapts its industrial practices in order to minimise its emissions, while optimising and reducing its consumption of energy, water and non-renewable raw materials. Therefore the vast majority of the Group's industrial sites rigorously monitor their wastes and emissions.

Since its creation, every year the Group has published the absolute/extensive values of its emissions and consumption of resources.

In order to oversee its environmental performance more precisely and provide a consolidated Group data report better suited to describe the evolution of this performance, ARKEMA has adopted a methodology enabling its plants to report on intensive indicators. This methodology limits the impact of any changes to its business base, its plants' productions, as well as any change to the method used to assess or compute environmental footprint variables. The computation procedure for these intensive indicators, Environmental Footprint Performance Indicators (EFPI), is described in the methodology note featured in section 2.6 of this reference document.

In 2013, ARKEMA decided in order to achieve its sustainable development commitments to set four new objectives for 2020 primarily translating its resolve to reduce its environmental footprint and strengthen its operational excellence.

These 2020 targets, with 2012 as the baseline, focus on:

- **concerning the climate: a reduction of its greenhouse gas emissions (GHG) of 30%;**
- **concerning emissions to air: a reduction of its volatile organic compound (VOC) emissions of 20%; and**
- **concerning emissions to water: a reduction of its Chemical Oxygen Demand (COD) emissions of 20%.**

Furthermore, as regards resource consumption, ARKEMA has set a target to reduce its net energy purchases by 1.5% on average per year in volume terms.

These targets refer to the intensive indicators mentioned above, so that they reflect the Group's efforts to reduce its environmental footprint regardless of any changes to its business base or its production volumes.

Published for the first time in the 2013 report, these targets were set by the Comex in 2013, with 2012 as the baseline. The progress of these indicators, expressed as intensive figures, for the 2006 to 2012 period, is also featured in paragraphs 2.2.1.2 and 2.2.1.3 of this reference document.

Over and above the evolution of these four specific intensive indicators, ARKEMA will continue to publish the progress of extensive values for all the parameters monitoring its environmental footprint.

2.2.1.1 ENVIRONMENTAL MANAGEMENT SYSTEM

Environmental certifications

The Group has put in place environmental management systems on its industrial sites, most of which have been granted an external environmental certification in accordance with the ISO 14001 standard. Based on the local context, certain sites have adopted other standards, e.g. the Responsible Care® Management System (RCMS) in the United States.

The environmental management system implies that each of the Group's industrial site identifies its environmental impacts (water, air including greenhouse gases (GHGs), wastes, noise, odours, and soil), and defines the priority areas which represent its action plan. A periodic environmental analysis of the sites is used to measure the progress achieved and define new improvement objectives. Each site rigorously monitors its emissions (including CO₂ and GHGs indexes) and wastes.

In addition to the audits conducted by the Internal Audit department, Group sites undergo two other types of audit: certification by external bodies and audits conducted by experts from the Group Safety, Environment department (DSEG).

The number of ISO 14001 – or RCMS (in the United States) – certified sites was 70% in 2014 (versus 55% in 2012 and 59% in 2013) across the global business base. These figures are 68% in Europe, 84% in America and 50% in Asia.

Environmental reporting

The Group conducts its reporting, for environmental indicators, including GHGs, in accordance with its environmental reporting directive and the guidelines made available to all its subsidiaries. This reporting is based on the principles of relevance, representativeness, and consistency. The methodology used by the Group for this reporting is described in section 2.6 of this reference document.

Management involvement

Reporting on the actions undertaken to reduce the environmental footprint of the industrial entities' activities are the subject of multiple presentations and discussions within the Group at the corporate level:

- an annual review during individual meetings between the Vice-Presidents of each BU, the Industrial Vice-Presidents, and the Group Safety, Environment and the Sustainable Development Vice-Presidents, on the full environmental footprint of the BU, including the energy footprint;
- ARKEMA produces annual environmental and energy reports presenting the results of the reporting year and comparing them with the data for the previous financial year, along with the historical environmental footprints (excluding energy) for the past six years. The reports are sent to the members of the Executive Committee and all of the departments concerned;
- a presentation by the Group Safety, Environment Vice-President to all members of the Comex of a summary of the Group's environmental results; and
- a presentation of a summary of the Group's results on the four key ARKEMA environmental footprint indicators for which objectives for 2020 have been defined. This presentation is made to all members of the Comex by the Sustainable Development Vice-President.

Environmental culture: training and information for employees and regulatory monitoring

In the field of the environment, ARKEMA employees are trained in and acquainted with the main characteristics of their site, the tangible outcome of their everyday actions or activities as well as the operational control of emissions of every nature, the quality of operations during plant shutdown or start-up in terms of emissions, and the sorting of wastes.

For ISO 14001 certified sites (70% of total sites), a specific environmental training programme is currently under development based on environmental risk analysis carried out for each workshop and monitoring of the main aspects of feedback about environmental incidents provided by the Impact Safety reporting system about their activities. This training programme is repeated on a regular basis to maintain awareness of the control of critical parameters.

As part of the "Essentials" programme described in paragraph 2.1.1.2 of this reference document, an "Essential" concerning the recycling of waste was rolled out in 2014 across ARKEMA.

The Group also ensures, through regular conference calls and circulating monitoring reports, that the European Community regulations, such as EU ETS Phase III (European Union Greenhouse Gas Emissions Trading Scheme) and the Industrial Emissions Directive (IED), as well as the rules for environmental reporting are properly understood by the network of HSE managers through awareness raising days. The Group has also implemented audit programmes. Environmental audits have thus been conducted at the Group's American sites to verify regulatory compliance.

As part of the reception of new recruits, general reception on site, the workstation training plans, as well as training initiatives for existing employees, HSE training is a priority. The HSE managers attend a specialised training programme country by country, either run in-house or by outside parties, and they also regularly take part in HSE conventions.

In 2014, the number of environment-related training hours recorded in entities in which the Group has a minimum 50% stake and which employ over 30 people, which accounts for 93.9% of ARKEMA's total headcount, amounted to 15,837 hours, i.e. 7.6 hours of training per year per environmentally trained employee. The number of employees having attended at least one environment-related training session over the year (excluding e-learning) is 2,070, representing 15.4% of ARKEMA employees in entities in which the Group has a minimum 50% stake and which employ over 30 people.

2.2.1.2 MANAGEMENT OF DISCHARGES

ARKEMA conducts an active policy to control and reduce the impact of its activities on the environment.

Accordingly, discharges of substances are identified and quantified by discharge type (air, water, wastes) so that suitable measures can be implemented to control them.

Preventive measures

For the Group's industrial sites, the reduction of environmental impacts consists in particular in optimising the use of raw materials, energy and natural resources like water. Discharges into the natural environment and other waste production are thus also reduced. Against this background, the Group has developed an environmental analysis methodology to analyse any significant environmental issues and impacts related to the activities of any given site and to undertake corrective programmes should they prove necessary.

The Group also carries out regular improvements to its production facilities, such as the modification of processes to reduce waste volumes or the installation of waste treatment units.

A number of regulations place strict limits on emissions from the Group's manufacturing facilities, including, for example, the European framework directive on water n° 2000/60 ("WFD") as regards water emissions. The Group has also taken part in a national campaign in France on research into hazardous substances in water fulfilling the WFD objectives.

Furthermore, in accordance with European directive n° 2010/75/UE on industrial emissions transposed into national law in the

various countries, the industrial sites to which the directive applies are subject to authorisations to operate including emission limit values in agreement with the said values mentioned in the "BREF Conclusions" documents published following BREF (Best REFERENCE) revisions. BREF documents are reference documents drafted, revised and published under the aegis of the European IPPC Bureau, itself a branch of the Institute for Prospective Technology Studies. They identify and describe the effectiveness of the best available techniques (BATs) in various sectors of activity.

Similarly, the United States Clean Air Act (CAA) sets federal standards relating to air pollution from fixed and mobile sources, and establishes national emission standards for 200 hazardous substances, based in particular on Maximum Achievable Control Technology (MACT).

European directive n° 2003/87/EC, amended by European directive n° 2009/29/EC of 23 April 2009, established a GHG trading system within the European Union. Under this scheme, in accordance with the provisions of amended ministerial decree of 31 May 2007, the Group was allocated annual allowances of 723,450 EUAs (EU Allowance Units) from 2012 onward to take into account the inclusion of the resins business sites into the Group's business base. These quotas were reviewed downwards to 620,811 EUAs at end 2012 following the divestment of the vinyl activities sites.

For the 2013-2020 period, the Group has filed applications for quota allocations for phase III of the European Union Emissions Trading Scheme. Four new sites have been added to the scope of this new phase. As Group sites belong to sectors and subsectors deemed to be exposed to a significant risk of carbon leakage, they will benefit from free allocations based on their emissions performance compared to relevant reference data. Annual quota allocations amount to some 718,560 EUAs. The Group does not expect that it will need to make significant purchases of additional CO₂ allowances.

Emissions to air

ARKEMA is committed to minimising its emissions of the most polluting compounds, in particular volatile organic compounds (VOCs), substances responsible for air acidification (nitrogen oxides and sulphur dioxide) as well as dust, and accordingly conducts a large number of actions to minimise them.

The Group therefore reduces its VOC emissions:

- by collecting and processing effluents that contain them (the most widely used technology is based on the installation of a thermal oxidiser, or the scrubbing of vents); and
- through regular campaigns to locate leaks and eliminate any emissions identified.

For emissions of VOCs to air, a number of Group plants may be cited as an example for the initiatives they led in 2013 and 2014 to minimise these emissions.

Thus, in 2014, the ARKEMA site in Marseilles (France) began installing additional collection points and connecting vents to a thermal oxidiser; this has already reduced VOC emissions by 11 tonnes, a figure put into perspective when compared to a long term objective of 15 tonnes announced in the 2013 reference document.

At the ARKEMA site in Changshu (China), the installation of breather valves and knock-out pots in December 2012 has helped to limit emissions of VOCs due to storage vents by approximately 38 tonnes per annum.

Arkema Inc. in the United States has invested in a programme at its Franklin site to improve the mechanical integrity of its plants, process controls and maintenance practices, which helped to reduce its VOC emissions by 15% in 2014.

The Group also reduces its emissions of substances contributing to air acidification:

- by using fuels with low or very low sulfur content, or natural gas instead of fuel oil in its boilers; and
- by putting in place new technology with low nitrogen oxide burners.

For emissions of substances that contribute to the acidification of air, a number of Group plants may be cited as an example for the initiatives they led in 2013 and 2014 to minimise these emissions.

Thus, the various investments made into boilers at some sites, either by switching from the burning of fuel oil to the burning of natural gas (La Chambre, France), or by installing equipment for processing exhaust products (Carling, France), helped significantly reduce emissions of substances contributing to acidification in 2013 and 2014.

In the United States, the Houston, Texas site has invested in a sophisticated ultrasound system to detect leaks, which has enabled it to identify emissions of Sulfur Dioxide (SO₂) from several valves –emissions that could not previously be detected. This investment has helped to reduce emissions of SO₂ by around half in 2014. From now on, a measurement campaign is carried out every quarter by members of the on-site personnel who have been specially trained to use the ultrasound system. This monitoring will help to avoid any mishaps and, over the years, to maintain SO₂ emissions at the reduced levels achieved in 2014.

In China, the Hengshui site changed the type of coal burned in its boilers, which made it possible to reduce its Sulfur Dioxide emissions by 360 tonnes, equivalent to more than half of the emissions declared in 2013.

Emissions to air extensive indicators

For 2012, 2013 and 2014, the levels of environmental indicators corresponding to quantified emissions to air generated by the Group's activities are shown in the table below. These have been drawn up in accordance with the methodology described in section 2.6 of this reference document.

Emissions to air	2014	2013	2012
All substances contributing to acidification (t eq SO ₂)	4,750	5,330	5,760
Carbon monoxide (CO) (t)	3,030	8,850	9,220
Volatile Organic Compounds (VOC) (t)	4,600	4,460	4,150
Dust (t)	430	400	460

As regards volatile organic compounds (VOCs), a review of the methods used to evaluate emissions to air had led to an upward review of emissions from a European site for 2012, which should have led to the reporting of 4,420 tonnes.

Casda Biomaterials Co. Ltd. acquired in 2012 conducted its first reporting of volatile organic compounds (VOCs) emissions. VOC emissions from this site significantly increased in 2014 due to improved measurement techniques and reached 742 tonnes. These figures offset improvements made in other entities through the actions given above as examples.

In 2014, emissions of substances contributing to the acidification of air were reduced by 580 tonnes compared to 2013 thanks in particular to the impact of the actions given above as examples.

As for emissions of dust, the capital expenditure put into a new transport system and a closed silo resulted in a reduction of five tonnes in the emissions of dust from the Changshu site (China). Additional expenditure planned for the end of 2015 should make it possible to save a total of 30 tonnes in 2016 (equivalent to more than 80% of emissions from the site), as announced in the 2013 reference document.

The significant reduction of CO emissions is related to the cessation of activities at the Chauny site in France (in the order of 5,100 tonnes).

Emissions to air intensive indicator

For 2012, 2013 and 2014, the EFPI values corresponding to intensive VOC emissions to air generated by the Group's activities, calculated as per the methodology note featured in section 2.6 of this reference document, are given in the table below. Emissions from the largest VOC emitters among the Group's sites used for these computations account for over 80% of the Group's emissions.

Emissions to air	2020 target	2014	2013	2012
EFPI Volatile Organic Compounds (VOCs)	0.80	0.79	0.86	1

The intensity of ARKEMA's emissions does not take into account the first declaration made by the Hengshui (China) site in 2014, as described in section 2.6 of this reference document, due to the uncertainty over the data in the first annual declaration made in 2013. This intensity, after the significant improvement in 2013, further improved across all other ARKEMA sites in 2014, thanks in particular to the actions described above.

ARKEMA's objective is to reduce by 20% its VOC emissions by 2020 compared to 2012.

By 2012, the Group had already cut down its intensive VOC emissions (EFPI) by 28% compared to 2006 based on a comparable methodology for assessing VOC emissions. The 2006 extensive figures have been corrected to allow for greater reliability for the EFPI computation exercise. Without modifications to the extensive figures reported and audited in 2007 for 2006, the reduction mentioned above would be around 10% smaller.

Emissions to water

Reducing its emissions to water is one of the Group's major environmental objectives. It lends particular importance to the issue of effluents with high chemical oxygen demand (COD) and the discharge of suspended solids.

ARKEMA conducts a large number of actions to minimise its emissions to water, in particular by reducing its effluents with high COD and suspended solid contents by systematically processing its effluents:

- by building its plants on inter-company platforms equipped with treatment plants;
- by gradually setting up physico-chemical and/or biological treatment plants to process effluents on remote sites; and
- by optimising treatment at effluent plants or controlling more effectively the effluents sent to the plants.

Accordingly, a significant investment for the installation of an effluent treatment plant was made in 2014 at the Pierre-Bénite site (France). This plant started operations at the end of 2014 and is currently undergoing optimisation.

ARKEMA also uses original water treatment techniques such as phytoremediation or phytodepuration, a natural purification system that re-establishes the ecological balance of aquatic environments and wetlands. Such a treatment system has been put in at the Boretto site (Italy) with final treatment after flocculation, microfiltration and passing over activated carbon of the water used to rinse the reactors and production lines. This system makes use of treatment by the roots of macrophytes like reeds (*Phragmites communis*) followed by an arrangement consisting of a short stream and a pond. This natural treatment increases elimination of COD and the surfactants present in the waste water.

Emissions to water extensive indicators

For 2012, 2013 and 2014, the levels of environmental indicators corresponding to quantified emissions to water generated by the Group's activities, drawn up in accordance with the methodology note in section 2.6 of this reference document, are shown in the table below.

Emissions to water	2014	2013	2012
Chemical Oxygen Demand (COD) (O_2 t)	3,870	3,800	3,430
Suspended solids (t)	3,030	2,950	2,840

Improvements made to the operation of effluent treatment plants at the Spinetta site (Italy) and the Rio Claro site (Brazil) have helped reduce COD discharges overall by some 300 tonnes between 2011 and 2013. However, these efforts had been completely masked by the arrival of a new contributor (the Hengshui site (China) of Hebei Casda Biomaterials Co. Ltd. acquired in 2012), as well as the quantification of this emission from 2012 to 2013 by American sites, which did not exhaustively declare this emission in previous years.

Between 2013 and 2014, several initiatives helped to reduce COD emissions from certain sites. Accordingly, at the Carling site (France), improvements made at the end of 2013 on a sensitive stage of the production process on an acrylate line, combined with the improved technological reliability of the equipments, helped to significantly decrease the proportion of the COD

discharges from the total site made by this line in 2014. At Rho, in Italy, the implementation of the off-site treatment of the waste water from the site resulted in a significant reduction in COD emissions from the plant into the environment.

Despite these efforts, total Group COD discharges increased in 2014. This was due to changes in the conditions for the production of organic peroxides in Europe related to the implementation of a growth strategy. These changes, which helped to optimise the consumption of raw materials and energy at the site, conversely led to a two thirds increase in COD emissions by this activity in 2014. In view of this impact, ARKEMA is studying ways to optimise its processes through the recycling of its liquid waste with the objective of bringing over time COD emissions from this activity back to the levels seen in 2013.

Emissions to water intensive indicator

For 2012, 2013 and 2014, the EFPI values corresponding to COD intensive emissions to water generated by the Group's activities, drawn up in accordance with the methodology note in section 2.6 of this reference document, are shown in the table below. Emissions from the biggest COD emitters among the Group's sites used for these computations account for over 80% of the Group's emissions.

Emissions to water	2020 target	2014	2013	2012
EFPI Chemical Oxygen Demand (COD)	0.80	1.03	1.00	1

ARKEMA aims to reduce by 20% its COD emissions by 2020 compared to 2012.

By 2012, the Group had already reduced by 23% its COD intensive emissions (EFPI) compared to 2006.

The worsening of the ARKEMA EFPI COD figures in 2014 was due to increased emissions from organic peroxide production, which more than offset efforts made elsewhere.

Waste production

Waste production is inherent to ARKEMA's industrial activities. However, the Group makes every effort to control waste production at every stage of its activities.

This commitment is reflected in a number of areas:

- reducing waste at the source, by designing products and processes that generate as little waste as possible;
- increasing the value of waste by turning it into by-products; and

- using waste as an energy source, where possible.

The following are examples of the latest progress achieved regarding reducing or valorising the waste, consistent with ARKEMA's commitments:

- seeking new ways of recycling and reusing waste: using certain types of waste as replacement fuels in the boilers, instead of traditional fuels;
- recycling cleaning solvents and optimising cleaning cycles; and
- installing filters to reduce the volume of sludge.

The table below shows, for 2012, 2013 and 2014, the amounts of hazardous and non-hazardous waste generated by the Group's activities, calculated as per the methodology note in section 2.6 of this reference document.

Waste (in kt per year)	2014	2013	2012
Hazardous waste excluding material recovery	149	160	160
including landfill disposal	2.1	2.7	2.4
Non-hazardous waste	219	210	157

In 2013, a special focus on the traceability of exceptional waste produced by demolition or excavation related to capital projects resulted in it being included in the report, thereby explaining a worsening of the indicator for non-hazardous waste.

In 2014, the shutdown of activities at the Chauny site made a significant contribution to the reduction in the tonnage of hazardous waste and masked increases related to the start-up of units such as the methyl acrylate unit at Clear Lake (United States).

ARKEMA's objective is not only to reduce its overall waste production, but also to recycle it into materials or recover their energy potential through their combustion.

Accordingly, in 2014, 16% of hazardous waste produced by ARKEMA in the world was recycled on or off the site where they were produced (recycled into materials), and 46% were utilised for energy recovery by combustion.

For 2012, 2013 and 2014, the quantities of hazardous waste recycled into materials and those utilised for energy recovery by combustion, calculated in accordance with the methodology note in section 2.6 of this reference document, are shown in the table below.

Hazardous waste (in kt per year)	2014	2013	2012
Waste recycled into materials	29	26	27
Waste utilised for energy recovery by combustion	79	88	94
Total Waste (including recycled into materials)	178	186	187

In 2014, improvements to materials recycling are to be noted for several sites: Günzburg (Germany), Nansha (China) and Feuchy (France); often related to different production methods to 2013. The reduced tonnage for waste utilised for energy recovery by combustion is the result of the shutdown of activities at the Chauny site.

Additionally, many by-products from manufacturing processes which are not the purpose of the production are sold as products requiring no processing other than normal industrial practice, and are not reported as waste in accordance with current regulations.

Other pollutions

ARKEMA's addressing the pollutions related to its activities with regard to the people living near its industrial sites is a major point of the Group's environmental policy. Every year, work is undertaken to reduce these pollutions, such as:

- reducing odours:
 - modifications to incinerators to minimise SO₂ emissions, and
 - modifications to demisters;
- reducing noise levels,
 - improvements to acoustic protection devices in air compressors and
- one example of reducing visual pollution is the La Chambre (France) plant where the replacement of the fuel oil used in a boiler by gas resulted in a noticeable improvement from the second half of 2014.

ARKEMA has also put in place real-time communication with its stakeholders on any event with a sound, visual or odour impact outside the boundaries of its production sites. Moreover, most sites now have a system in place for compiling and processing complaints from local people, and so, where possible, addressing them and minimising the nuisance concerned.

2.2.1.3 MANAGEMENT OF RESOURCES

For the Group's industrial sites, the reduction of environmental impacts consists in particular in optimising the use of raw materials, energy and natural resources like water.

From the moment of their design, new manufacturing units incorporate the environmental footprint in the choice of process and equipment.

Work is also carried out regularly on the plants' operating methods, while development investments are made to reduce the consumption of water, energy resources and raw materials of the Group's facilities.

Water consumption

The Group uses water in the course of its industrial activities for:

- its manufacturing processes in reaction medium, the need to cool the production equipment, or to scrub products or equipment;
- the production of steam; and
- the use of hydraulic barriers intended to process groundwater contaminated by historical pollutions (case of old sites).

The Group wishes to make its contribution to an optimised consumption of fresh water both from surface water and from groundwater.

It adapts its production practices to consume less water by using devices that reduce consumption and by developing closed circuits.

Based on local constraints and the sites' activities, the actions taken over the years can concern a wide variety of issues, including better monitoring of consumption, installation of flowmeters, introduction of leak detection programmes, changing the technologies, upgrading fire-fighting circuits, recovering rainwater, and recycling water from scrubbing or boiler condensates.

Accordingly, in October 2013, Arkema Inc. (United States) commissioned a new cooling tower at its Memphis site, which reduced water consumption at the site by 1.5 Mm³ in 2014 compared to the 2012 benchmark, close to the objective announced in the 2013 reference document for the reduction of its water consumption by nearly 2 Mm³ on an annualised basis compared to an average annual consumption of 5.8 Mm³ over the 2012-2013 period.

For 2012, 2013 and 2014, the levels of environmental indicators corresponding to the pumping and use of water by the Group, calculated according to the methodology note in section 2.6 of this reference document, are given in the table below.

Use of water	2014	2013	2012
Total water pumped (in Mm ³)	120	130	130

The quantities of water pumped by the Group, which had not changed in 2013, decreased considerably in 2014, due mainly to the investment made in Memphis (United States) and to adjusting pumping to the needs of the Pierre-Bénite site (France).

Consumption of raw materials

The Group wants to play a part in optimising the consumption of non-renewable raw materials used in its manufacturing processes.

It aims to save on the raw materials it consumes by initiatives to control its processes and develop operating best practice as part of a programme to minimise the variability of processes, or by adapting its processes' operating conditions such as excessive amount of reagent, stirring conditions within reactors, and temperature conditions.

Furthermore, the Group develops, alone or in partnership with its suppliers, actions such as the recycling of reaction solvents used in its manufacture, or offering the recycling of spent activated carbon to its customers.

Finally, the Group develops the use of renewable raw materials by using biosourced raw materials. ARKEMA is in fact the world's largest producer of specialty polyamides derived from castor oil. A long-standing producer of polyamide 11 from castor oil in Europe, in 2012 the Group acquired in China the companies Hebei Casda Biomaterials Co. Ltd., a producer of sebacic acid from castor oil, and Suzhou Hipro Polymers Co. Ltd., a producer of polyamides 10.10 and 10.12 from this sebacic acid.

As stated in paragraph 2.3.4 of this reference document, these products accounted for approximately 13% of Group sales in 2014.

Energy consumption

The Group uses various sources of energy mostly as part of its manufacturing operations, but also to maintain some of its buildings at certain temperature levels.

The Group wants to play a part in optimising the consumption of energy used in its manufacturing processes and facilities.

As part of its Energy Policy that has been widely communicated within the Group, ARKEMA reaffirms the emphasis it places on improved energy use. With this in mind, the Group has set an objective of reducing its energy consumption by an average 1.5% per annum over the 2012 to 2020 period. This objective is substantially greater than the reductions reported over previous years.

To reach this objective, Arkema has strengthened its Arkenergy programme and rolled it out to all of its subsidiaries with the help of a network of Energy Leaders in the BUs and the plants, as well as in the relevant purchasing and technical departments.

This programme, which also helps to make the Group's industrial sites more competitive, meets the following imperatives:

- the continuous drive to optimise the consumption and cost of energy from the design and purchasing of equipment to daily operations in the plants;
- the setting up of an energy management system to systematically embed best operational practices, define targets specific to each site and to periodically review them; and
- compliance with laws, regulations and other applicable requirements in terms of energy efficiency.

Following a period spent raising awareness and setting up a performance indicator, the Arkenergy programme, since it was further strengthened in 2014, now relies on the application of the following decisions:

- the roll-out of energy efficiency evaluations on a global scale focusing on the plants that contribute the most to net energy purchases. In 2014, 20 energy efficiency evaluations were begun or completed by the Group, including 14 in Europe, 5 in North America and 1 in China;
- the implementation of ISO 50001 as the energy management system in Europe and Asia. At the end of 2014, five Group sites had been ISO 50001-certified in Europe and ten had begun the process, including nine in Europe and one in Changshu (China);
- the allocation of a corporate capital expenditure budget specifically for initiatives taken as part of the Arkenergy programme. In 2014, 47 capital projects were funded by this central Group budget, including 31 in Europe, 12 in North America and 4 in Asia.

The total savings expected as a result of these investments are estimated at around 109 GWh on an annualised basis.

These investments made to reduce the Group's energy consumption concern capital projects as diverse as new compressors or more efficient motors, changing the joints on pumps, variable frequency drives, new boilers, pre-heaters, condensate heat recovery systems, the revamping of boilers, eliminating leakage of compressed air, changing steam traps, renewing insulation on the steam and boiler circuits and risers or internal modifications to the risers.

Initiatives taken with the instrumentation and the implementation of control systems to optimise the consumption of various sources of energy will also generate savings by optimising operating methods and handling instructions or through minor expenditure.

The significant investments made in the French sites at Lacq, La Chambre and Jarrie that began in 2014 have already had a favourable impact on energy consumption in 2014.

Total, SOBEIG and ARKEMA, with the support of the French government as well as local authorities, invested over €150 million in Lacq Cluster Chimie 2030, a project to transform the Lacq (France) platform into an industrial centre of excellence. This project enables ARKEMA to continue operating its thiochemicals activities from the hydrogen sulphide (H₂S) provided by the last gas resources in Lacq, and represents an environmental benefit in terms of energy and transport compared to H₂S production from sulfur. Furthermore, investments made by ARKEMA have helped to reduce energy consumed during manufacturing operations on a like-for-like and annualised basis by 40 GWh, in line with the objective announced in the 2013 reference document.

The La Chambre (France) site saw the launch of an energy-saving plan based on process modifications, operating parameter optimisation and enhanced recovery of vapour condensates or hot water, spread over 2013 and 2014, which has already helped to save 9% of energy consumed at the site, and is well

on the way to achieving the expected longer term saving of 14% announced in the 2013 reference document.

A net investment of approximately €40 million was made by ARKEMA at its Jarrie (France) site in 2012 and 2013 into the production of chlorine, with financial support from the French government. All mercury electrolysis cells were dismantled, and a new electrolysis facility was built, based on the membrane process. This restructuring of the Jarrie industrial facilities will enable the use of mercury to be discontinued at the site and will thus prevent risks of emissions related to its use ahead of the end 2019 deadline set forth by French law. Furthermore, an investment into new air compressors in the hydrogen peroxide production facilities has helped to further optimise energy consumption at

the Jarrie plant. In 2014, this major capital expenditure helped to reduce the energy used for chlorine production, leading to a reduction of around 9 GWh in the overall consumption of the site, despite increases in production at other facilities at the site.

Many other initiatives are also underway at the Group's sites. For example, in the United States, a major modification of the way in which a production facility operates at the Bayport site has reduced energy consumption in the facility by 20 GWh. In France, the recovery of steam from an incinerator, combined with the optimisation of production facilities, has resulted in savings of more than 10 GWh at the Saint Auban site and the installation of a more efficient boiler at the CECA site in Parentis has reduced energy consumption by 5 GWh.

Energy purchases extensive indicator

For 2012, 2013 and 2014, the Group's net purchases of energy, drawn up as per the methodology note in section 2.6 of this reference document, are shown in the table below.

Net purchases per year	2014	2013	2012
Total net purchases of energy (in TWh)	8.36	8.50	8.50

Net purchases of energy for 2014, which do not yet benefit from the impact of most of the Arkenergy capital expenditure in 2014, but are positively affected by the investments made in the sites at Lacq, La Chambre and Jarrie, were down by 1.6%, but would have fallen by 3% with production equivalent to 2013.

The breakdown of net purchases of energy by region and by type of energy, is as follows:

Net purchases by region	Europe	Americas	Rest of the world
Total net purchases of energy (in TWh)	4.65	2.78	0.93

Net purchases by type	Fuels	Electricity	Steam
Total net purchases of energy (in TWh)	4.52	2.44	1.40

90% of TWh produced by fuels are from gas.

17% of the net purchases of TWh by the Group, including all sources of energy, come from low carbon emission electricity.

Energy purchases intensive indicator

For 2012, 2013 and 2014, the values of intensive EFPIs corresponding to net energy purchases generated by the Group's activities, calculated as per the methodology note in section 2.6 of this reference document, are provided in the following table. Purchases by the biggest energy net purchasers among the Group's sites used for these calculations account for over 80% of the Group's net purchases.

Net purchases of energy	2014	2013	2012
EFPI net purchases of energy	0.99	1.02	1

ARKEMA's objective is to reduce by on average 1.5% per year its energy net purchases expressed as intensive values (EFPI) by 2020 compared to 2012.

Usage of soils

ARKEMA wants to minimise its footprint on and use of soils.

The first type of actions conducted by the Group in this regard concerns the remediation of soils.

Some of the Group's industrial sites, particularly among those whose manufacturing activity goes back a long time, have been, or are, responsible for environmental pollution, notably of soil or groundwater, and have been the subject of actions described in paragraph 2.2.1.6 of this reference document on the management of historical pollutions.

In this regard, ARKEMA develops new soil remediation techniques through stimulation of bacteria naturally present in the soil in order to help with the degradation of chlorinated solvents historically present, as is the case, for example, with the Saint-Auban and Mont sites in France. The pilot undertaken at the Mont site since 2013 has produced conclusive results and will continue in 2015 once authorised by the administration, which is expected in the first half of 2015.

The second type of actions conducted by the Group concerns the management of part of some of its sites which are not or no longer taken up by production facilities, in order to allow the development of certain animal species. These actions are described in paragraph 2.2.1.5 of this reference document on biodiversity.

Finally, the last type of actions conducted by ARKEMA concerns the regulatory restoration of diatomite quarries, post mining, of its CECA subsidiary. These quarries are located in Virargues and Saint-Bauzile in France.

Restoration of these sites entails firstly a partial backfilling phase for those sections of the quarries that are no longer mined as mining progresses, by limiting the slope of remodelled land, and in some cases re-establishing tributaries of streams, wetlands, and other features. Backfilling only uses barren soil from the prior mining of the quarry. This remediation work is then completed with a final backfill when topsoil is added to this remodelled land. The final restoration is very often earmarked for agricultural use.

2.2.1.4 CLIMATE CHANGE

Direct emissions of greenhouse gases

Direct emissions to air, known as Scope 1 Greenhouse Gases (GHGs), by ARKEMA are due to:

- operations requiring the input of energy (burning of fuel oil and gas);
- emissions from processes that generate CO₂, N₂O or CH₄ as product, by-product, co-product, waste or gas discharges like, for example, thermal oxidation used to process VOCs into CO₂;
- HFC emissions from its production plants for these products; and
- fugitive emissions from cooling circuits using GHGs.

Direct emissions of greenhouse gases extensive indicator

For 2012, 2013 and 2014, quantified direct emissions to air of greenhouse gases (GHGs) generated by the Group's activities are shown in the table below. They were drawn up as per the methodology note in section 2.6 of this reference document.

Direct emissions of greenhouse gases (GHGs)	2014	2013	2012
GHGs (kt CO ₂ eq)	3,430	4,710	5,120
including CO ₂	1,380	1,470	1,460
including HFC	2,010	3,200	3,610

The breakdown of these direct emissions of GHGs by region is as follows:

Direct emissions of greenhouse gases (GHGs)	Europe	Americas	Rest of the world
GHGs (kt CO ₂ eq)	1,050	2,040	340

In 2006, the Group's direct emissions were 9,240 kt CO₂ eq.

ARKEMA takes action in terms of climate change by reducing GHG emissions from its own production plants.

To reduce its impact on global warming, the Group has undertaken a number of actions and deployed effective means to minimise direct GHG emissions. ARKEMA was already one of the French companies within the association of companies for the reduction of greenhouse gas emissions (AERES), which has made a voluntary commitment to achieving GHG reduction targets.

The following examples illustrate this initiative:

- the replacement of boilers with more efficient equipment (Carling site in France) and the first effects at the end of the year of the work done on steam traps and the insulation of steam circuits undertaken at a number of sites as part of the Arkenergy programme and described in paragraph 2.2.1.3 of this reference document concerning energy consumption;

- the replacement of air-conditioners and cooling units with more efficient models, as well as enhanced preventive maintenance work, have helped reduce emissions from this type of equipment; and
- the implementation of equipment to process emissions generated by the installations such as the thermal processing units in the plants or the later connection of recovery column vents to these

thermal oxidisers in the plants at Calvert City (United States), Pierre-Bénite (France) and Changshu (China).

In 2013, the sites that contributed the most to a reduction in GHG emissions were notably Calvert City (United States) where a vent was connected to a thermal oxidizer.

In 2014, the investments made at the Calvert City site at the end of 2013 generated an additional reduction in its GHG emissions of 1.2 Mt CO₂ eq.

Direct emissions of greenhouse gases intensive indicator

For 2012, 2013 and 2014, the EFPI values corresponding to the direct GHG intensive emissions generated by the Group's activities, computed as per the methodology note in section 2.6 of this reference document, are given in the table below. Emissions from the biggest GHG emitters among the Group's sites used for these calculations account for over 80% of the Group's emissions.

Direct emissions of greenhouse gases	2020 target	2014	2013	2012
EFPI greenhouse gases (GHGs)	0.70	0.70	0.93	1

ARKEMA's objective of reducing its direct emissions of GHGs by 30% by 2020, as compared to 2012, was achieved in 2014, largely thanks to the investments made in Calvert City (United States).

By 2012, the Group had already reduced its GHG intensive emissions (EFPI) by 52% compared to 2006.

Indirect emissions of greenhouse gases

The indirect emissions to air of greenhouse gases (GHGs) analysed by ARKEMA are:

- emissions of CO₂ known as Scope 2, related to the production by its suppliers of the electricity and the steam purchased by the Group; and
- emissions of CO₂ known as Scope 3, due to the transportation of all the Group's products.

For 2012, 2013 and 2014, the values of Scope 2 and Scope 3 CO₂ emissions generated by the Group's activities, calculated as per the methodology note in section 2.6 of this reference document, are given in the tables below. These emissions were audited for the first time for the 2013 and 2014 financial years.

Indirect emissions of greenhouse gases (GHGs)	2014	2013
Scope 2 CO ₂ (kt)	1,067	1,053

In 2014, Scope 2 CO₂ emissions were up by 1.3% compared to 2013.

The breakdown of these of Scope 2 CO₂ emissions by region is as follows:

Indirect emissions of GHGs by region	Europe	Americas	Rest of the world
Scope 2 CO ₂ (kt)	284	545	239

The Group is reducing its Scope 2 CO₂ emissions through actions such as those described under paragraph 2.2.1.3 of this reference document to limit its energy consumption, particularly by:

- reducing its purchases of electricity thanks to investments in new compressors or more efficient motors, variable frequency drives and by eliminating leaks of compressed air;
- reducing its purchases of steam thanks to investments in condensate heat recovery systems, the revamping of boilers, changing steam traps, renewing insulation on the steam and boiler circuits and risers;
- putting in place additional instrumentation and control systems to optimise purchases of steam and electricity while also optimising ways of working and operating methods.

The reduction of Scope 2 CO₂ emissions by the Group will be directly related to ARKEMA's objective to reduce its net purchases of energy by an annual average of 1.5% expressed as intensive values (EFPI) by 2020 as compared to 2012.

In 2014, Scope 3 CO₂ emissions, due to the transportation of all the Group's products, are estimated to be in the order of 0.2 million tonnes at more or less 20%.

The Group reduces its Scope 3 CO₂ emissions by actions such as those described under paragraph 2.4.4. of this reference document, particularly by:

- making maximum use of bulk sea vessels combined with bulk storage for local deliveries rather than shipping in containers; 26% of the volume of ARKEMA's products shipped by sea from Europe are shipped in bulk;
- developing the use of rail and mixed road/rail or rail motorway types of transport, which now represent 44% of all land shipments made by the Group within Europe;
- maximising the load ratios for bulk transportation by road; for example, the average load in Europe is 23 tonnes per truck for bulk shipments, which represents 76% of volumes carried by road; and
- by limiting airfreight to 0.07% of its total shipments, using it only for shipping samples or in exceptional circumstances where there is a risk of a customer on another continent running out of stock.

Adaptation to the extreme consequences of climate change

The Group operates a number of sites in the United States, in particular near the Gulf of Mexico, and in Asia which can experience extreme weather events such as tornadoes, tropical cyclones (typhoons, hurricanes), and flooding, the frequency and intensity of which could be exacerbated by climate change. ARKEMA lends particular attention to the potential impact of these extreme weather events.

The Group therefore analyses the potential impacts of these weather events when acquiring new businesses. Where the potential climate impact is regarded as liable to have a particular incidence on the safety of people or on the economic aspects of the acquisition, it may then be the subject of a specific study by third party experts.

When designing new production plants, ARKEMA applies the HAZID (HAZard IDentification) method to be able to take account of the impact of external events such as natural disasters on the mechanical strength of the construction.

The standards used for the construction of ARKEMA's plants comply with local regulations and data.

The design of facilities therefore includes extreme values of wind speed as well as data on flood risks (100-year flood) in the conditions of the sites housing new plants.

The measures implemented on sites potentially subject to such extreme events concern for example raised plants or control

rooms, earth-filled dams, or concrete walls around storage facilities.

Response to these events is described in the emergency response procedures, for those sites that are potentially impacted. In all cases of alert, the sites comply with instructions from the authorities.

Emergency procedures are implemented to shut down and maintain the facilities safe in order to minimise the risk of emissions of chemical substances into the environment when these extreme events occur.

Stocks of some products are also maintained in external storage facilities that are not potentially impacted in order to prevent shortages in supplies to ARKEMA's customers.

The Group also indicates the exposure of its sites in some regions that are particularly exposed to this type of events. These extreme weather events do not include seismic risks, described in paragraph 1.7.2.3 of this reference document.

Eighteen Group sites are exposed to the risk of severe storms (tornadoes and cyclones) and flooding, eleven of which are on the American continent. This data is based on both the 2014 update of reports compiled by ARKEMA's property damage insurers as well as information on climate related risks provided by a reinsurance company.

2.2.1.5 PROTECTION OF BIODIVERSITY

Measures taken to protect fauna and flora including biodiversity

In the course of its operations, the Group places the protection of the environment at the core of its objectives, and is committed to constantly improving its performance in these areas.

The protection of biodiversity first implies the protection of environment, fauna and flora and of all species that could be impacted by emissions due to the Group's activities.

Actions concern discharges from every site into water, the soil, and the air.

A periodic environmental analysis of the sites helps measure the progress achieved, identify its impacts, and define the priority areas for their action plans concerning the protection of the environment and therefore all the species that their activities might impact.

Additionally, from their design stage, new production plants include the environmental footprint in the choice of process and equipment.

The actions conducted by ARKEMA in particular within the framework of laws and regulations to minimise chemical oxygen demand (COD) in its effluents discharged into rivers are designed to protect the dissolved oxygen gas that is key to all animal aquatic life.

The actions conducted by ARKEMA *inter alia* within the framework of laws and regulations in order to minimise volatile organic compound (VOC) emissions to air are designed to reduce the

formation of ground-level ozone, a super-oxidant harmful to fauna and flora. Similarly, reducing SO₂ and NO_x emissions helps prevent the formation of acid rain which, in addition to its direct effect on plant life, can also alter the characteristics of soils.

The actions conducted by ARKEMA within the framework of laws and regulations on the remediation of the soil on its sites where former industrial activities were or are the cause of environmental pollution, also help protect the various species which depend on their soil or groundwater.

Measures taken to develop biodiversity

Although the land it occupies is limited, the Group conducts a number of actions in Europe to contribute, on its scale, to the development of biodiversity on the sites where some of the land is not allocated to industrial activities.

In France, the Pierre-Bénite site, in partnership with the NATURAMA environmental education association, initiated a programme to refurbish areas that had been wasteland since 2010. A survey of the fauna and flora present on the site highlighted the importance and remarkable aspect of an existing reed bed. Accordingly, the initial action of the management plan spanning several years was the restoration of this reed bed, with appropriate plantations and the elimination of invasive plants, followed by its extension with the creation of a second basin in 2012. In 2013, flower meadows and ponds were landscaped within the boundaries of the platform where demolished old buildings used to stand. These flower meadows have above all an aesthetic appeal, by offering colourful and fragrant spaces. They also have ecological benefits insofar as these environments abound with biodiversity, being home to many varieties of plants, insects and birds.

The Carling (France) site called upon the services of consultants specialising in the environment (*Atelier des Territoires*) for the remediation and enhancement of the ecological status of a former wastewater treatment lagoon with a surface area of 3.5 hectare, while rehabilitating the landscape. The project began in 2012 with an analysis of species potentially present and therefore to be nurtured to allow ecological diversity to develop. 2012 and 2013 saw the restoration of hedgerows and ponds judiciously positioned for harmonious cohabitation with the surrounding industrial facilities, on the one hand, and the improvement of open meadows as well as landscaped boundaries favourable to fauna and flora biodiversity, on the other. These refurbishments yielded the first noticeable benefits in spring 2013.

The Boretto site (Italy) uses phytoremediation or phytodepuration, as described under paragraph 2.2.1.2 of this reference document, a natural system of purification that re-establishes the ecological balance of aquatic environments and wetlands. To do so, the first part of the ground at the site was transformed into a marsh partially planted with common reeds, and a short stream and a pond were created in the second part. It is in this second part that aquatic species have become established (crayfish, frogs and water snakes). Similarly, this peaceful environment serves as a refuge for bird life, such as pheasants, magpies and sparrows, and has encouraged the development of a colony of ducks and provides a nesting habitat for wild geese.

Meanwhile, as described in paragraph 2.2.1.3 of this reference document, CECA, a subsidiary of the Group, takes care of the regulatory post-mining remediation of its diatomite quarries in France. Accordingly, CECA has commissioned the *Fédération de Protection de la Nature Ardèche* (FRAPNA) to carry out an expert survey of the fauna and flora on its Saint-Bauzile site. This survey is part of a five-year plan, launched during an inventory in 2000. The second study carried out in 2011 highlighted the presence in the quarry and its immediate surroundings of a wealth of ever-improving flora and fauna. These findings confirmed the benefit of restoring vegetation with local plant species as recommended by FRAPNA in 2007, in terms of herbaceous as well as short and tall woody plants. Such studies help redefine and adjust plant species, in line with FRAPNA recommendations, for the replanting of embankments and slopes in zones being remediated. The work in progress therefore helps redevelop the biodiversity of the land being restored.

Equally, when the authorisation to mine our quarry in Virargues (France) was renewed and extended on 26 July 2013, CECA concluded two agreements with two relevant regional bodies in order to implement measures to safeguard and boost the local ecosystem.

The first convention, signed for a duration of 25 years with *Union Régionale des Forêts d'Auvergne* (URFA) and its *Mission Haies Auvergne*, is designed to reinforce the functionality for the bird fauna of the local fields and woods on the land belonging to CECA. Work overseen by URFA will help the creation of hedgerows stretching over 2,475 metres, and the annual monitoring of the hedgerows so created.

The second convention, signed for a duration of five years, with the *Syndicat Interdépartemental de Gestion de l'Alagnon et de ses affluents* (SIGAL), aims to put in place a specific programme for the refurbishment, management and oversight of the most severely spoilt sections of the streams within the watershed of the river Alagnon in order to promote the development of protected species of freshwater crustaceans.

These concrete examples do show that industrial activity and biodiversity can coexist.

2.2.1.6 MANAGEMENT OF HISTORICAL POLLUTION AND RELATED PROVISIONS

Some of the Group's industrial sites, particularly those whose manufacturing activity goes back a long time, have been, or are, responsible for environmental pollution, notably of soil or groundwater. Under these circumstances, a number of sites currently being operated by the Group, or that were operated by the Group in the past and subsequently sold, as well as adjoining sites or sites where the Group stored waste or had waste eliminated, have been, still are, or could be in the future subject to specific demands for remediation from the relevant authorities.

Where there is a problem of soil or groundwater contamination on a site, investigations are launched to establish the extent of the area concerned and ascertain whether the pollution is likely to spread. The Group cooperates with the authorities to define

the measures to be taken when the risk of an impact on the environment or a danger to health has been identified.

The amount of provisions for environmental risk as at 31 December 2014 is provided in Note 20.3 of the notes to the consolidated financial statements in paragraph 4.3.3 of this reference document.

2.2.2 MANAGING PRODUCTS RESPONSIBLY (PRODUCT STEWARDSHIP)

2.2.2.1 POLICY AND GENERAL ORGANISATION

The Group ensures that it markets products that are useful to society at large, are safe, and do not harm human health or the environment.

To this end the Group has an organisation, teams of experts, IT resources and databases to enable it to meet regulatory requirements on product safety.

Product Stewardship requires constantly improving knowledge of the characteristics of the products and their conditions of use. Accordingly, the Group has for many years relied on a team of expert toxicologists and ecotoxicologists who conduct the necessary studies to characterise the hazards presented by products, and work in close collaboration with regulatory experts carrying out risk evaluation in conditions of use.

The Group expresses its commitment by complying with REACH, the European regulations covering the processes for the registration, evaluation, authorisation and restrictions on chemical products. These are probably the most ambitious regulations of the past twenty years. They aim to make profound changes to the way in which the chemical substances produced, imported and distributed in the European market are managed, by improving knowledge, analysing environmental and health risks, and by defining ways of managing the risks that may result from their manufacture or use. The Group endorses the objectives of REACH which represents an additional means to the continuous improvement of knowledge of its substances and their safe use, thereby meeting the legitimate expectations of civil society.

To be in a position to conduct the major workload corresponding to the obligations of this regulation, the Group has set up a project-type organisation overseen by a steering committee at Executive Committee level. The core of this setup is centralised at Group level within the Safety Environment Product division (DSEP) in charge of the health, environment and safety issues of products as well as regulatory implications, and based on a team of experts in toxicology, ecotoxicology and regulations. These various experts ensure the implementation of the REACH regulations centrally, by relying on a network of correspondents that take part in drafting parts of the cases concerning the BUs, the industrial sites, the subsidiaries and R&D for operational issues, and the Purchasing, Information Systems, Legal, and Communication departments for functional issues. This organisation has enabled the Group to fulfil the requirements of the REACH regulation.

- **Registration:** 151 substances were registered with ECHA following the initial registration deadline set for 30 November 2010, and 123 substances were registered for the second registration deadline set for 31 May 2013. The Group expects to register a total of 480 substances (excluding BOSTIK acquired early 2015), of which ten or so are potentially subject to authorisation, a figure that was refined following these two registration periods, now closed, completed by a survey of the BUs on the evolution of their portfolios. The Group estimates that compliance with this new regulation will cost it around 45 million euros over the 2012 to 2020 period.
- **Evaluation:** ARKEMA is involved in four cases for which the evaluation has now been completed. They pertain to three substances manufactured by ARKEMA: Carbon Tetrachloride (CTC) manufactured by ARKEMA until 1 July 2012 then used at the Mont site (France), Diphenyl Guanidine (DPG), for which ARKEMA is acting as leader of the registration case, and Methyl Chloride manufactured at the Jarrie site, and another substance used by ARKEMA as a raw material (Bisphenol A – BPA), which is the subject of European risk studies and national bills, particularly concerning its use in materials in contact with food products. No particularly binding conclusions are anticipated for CTC, DPG or Methyl Chloride at the European level, except for a few additional tests and risk analyses. By contrast, BPA and indirectly its derivatives may be subject to restriction measures in certain markets, in particular the food market. At French level, a law was published in the *Journal Officiel* of 24 December 2012 aiming to suspend from 1 January 2013 the manufacture, importation and sale on the market of any packaging, container or article comprising BPA and used to enter directly in contact with foodstuffs for babies and small children. This ban has been extended to all categories of people from 1 January 2015. ARKEMA has little exposure to the market for food containers and, in addition, it works closely with its customers to substitute products derived from BPA. In addition, three other cases underwent evaluation in 2014. They pertain to three substances manufactured by the Group (Isophorone produced at the La Chambre site), Butyl Acrylate produced at Carling and Bisphenol A Propoxylate (BPA-4OP) produced by CECA. The draft decisions suggest that further data is necessary before being able to decide whether or not community wide measures might be necessary;

- **Authorisation:** in the phase to register substances on the candidate list, ARKEMA follows the proposals for registration and responds to the consultations organised by ECHA for substances whose use(s) may be subject to authorisation (given that substances used as synthesis intermediates are not subject to authorisation). The potential implications are estimated from which action plans could be drawn up, including such measures as: the consideration of alternative substances for the envisaged uses, filing an application for authorisation when falling under Annex XIV, conversion of the plant, planned cessation of the activity. As at 31 December 2014, the candidate list contained 161 substances. Of these substances, those concerning the Group were (i) Hydrazine produced at the Lannemezan site (France), (ii) 2-Imidazolidinethione (ETU) produced by MLPC, (iii) Nonylphenol Ethoxylates produced by CECA, (iv) Dioctyltin bis (2 Ethylhexyl Mercaptoacetate) produced at Vlissingen on behalf of another company, and (v) Sodium Dichromate, which is used as a processing aid at the Jarrie site (France). Sodium Dichromate is the subject of registration under Annex XIV, and ARKEMA will file an authorisation dossier, as the search for an alternative solution has yet to yield results.
- **Restriction:** Cobalt Chloride should go from a recommendation for registration under Annex XIV with a view to authorisation, to a recommendation for restriction that would, in theory, only target metal coatings, an application that does not affect ARKEMA, which uses it as a processing aid at its Jarrie site. Nevertheless, pending a formal proposal for restriction and as a precautionary measure, ARKEMA is studying a substitution solution.

ARKEMA does not manufacture Persistent Organic Pollutants (POPs).

During the first quarter of 2014, ARKEMA stopped production of Diethylhexyl Phthalate (DEHP) and, during the course of 2014, closed down the site at Chauny, which produced DEHP. This product is the subject of an authorisation process leading to registration under Annex XIV of REACH. ARKEMA does not produce or sell Bisphenol A (BPA). ARKEMA uses BPA as a raw material, which is then transformed into other products. DEHP and BPA are subject to various national regulations that restrict their use due to suspected endocrine disrupting properties.

Outside Europe, the Group markets its chemicals in accordance with the mandatory inventories in the various countries or regions which use them. Due to its history and global presence, the Group has products that are already notified in many inventories. Should a need arise for a new product notification, the Group has a major database on the characteristics of its products, which means that it can file dossiers in an optimum time scale. Notifications are executed thanks to the work of experts at Group level who rely on the product HSE Managers in the country subsidiaries and/or a network of local specialist consultants.

These experts are in constant contact within their own network. Every year, a seminar is held over several days in Asia devoted to discussions between product HSE Managers in the Asian subsidiaries and their head offices and American counterparts. The product HSE roadmaps are decided on during this seminar by country depending on changes in the local situation and regulations.

In 2015, three new sets of regulations similar to REACH will be put in place in Asia - in Korea, in Taiwan and in Turkey, concerning the obligation to register existing substances on one hand, and on the other hand, in Malaysia and Turkey, the Globally Harmonised System of Classification and Labelling for Chemicals (GHS), set up by the United Nations Economic and Social Council, will be further rolled out.

In many countries, the Group records knowledge of the products' characteristics and conditions of use in a (Material) Safety Data Sheet ((M) SDS), a document prepared to be able to market chemical products classified as hazardous to human health and/or the environment. The (M) SDS must feature the necessary prevention and safety data for the use of a hazardous product. These (M) SDSs are prepared in some forty languages thanks to a high performance IT infrastructure and the information compiled from a global database grouping together all product compositions as well as their toxicological, ecotoxicological and physico-chemical data, thereby ensuring consistency of information wherever the Group's products are marketed. The Group releases (M) SDSs in accordance with regulatory requirements, and/or makes them available on its website and/or via the QuickFDS internet platform.

The organisation of the Group, the resources allocated, and the motivation of all personnel have enabled extended safety data sheets to be made available (extended (M) SDSs, the latest format established by REACH), which now include a description of exposure scenarios for identified uses, therefore allowing improved risk management.

The Group has a high performance IT system to draft its regulatory documents, and adapts it as required in order to include the latest formats and data related in particular to the implementation of GHS in the countries that endorse this system, which defines a common classification and labelling method.

The Group has also developed a system for publishing labels which uses validated data from its central database to print labels within a consistent classification, regardless of the country in which the product is manufactured and/or marketed.

Thanks to its organisation, its scientific and regulatory expertise, its teams of experts assisted by efficient information technologies, the Group shows its commitment, over and above these regulatory requirements, to marketing its chemical products in a safe and responsible manner, by informing its customers and the public in complete transparency.

2.2.2.2 HEALTH, SAFETY AND ENVIRONMENT FOR CONSUMERS

Product Stewardship, which goes beyond regulations, consists in ensuring that the products have no effect on the health and safety of people, or their environment. This approach involves every player in the product chain, from raw material supplier to end-customer. The Group ensures that it markets products that are useful to society, are safe, and do not endanger health, the environment, or the safety of users and consumers by taking actions that go beyond mere compliance with the regulations described in paragraph 2.2.2.1 of this reference document, in accordance with the undertakings set out in its Safety, Health, Environment and Quality Charter.

The Group has already translated its commitment to Product Stewardship by endorsing the Responsible Care® Global Charter of the International Council of Chemical Associations (ICCA), as part of international programmes such as High Production Volume (HPV) lead by the latter and the Environmental Protection Agency (EPA) in the United States.

The Group remains committed in this regard by participating in the Global Product Strategy (GPS) programme. This commitment entails the creation of a specific web page dedicated to GPS and the regular publication of information sheets in the form of Safety Summaries on the ICCA website as well as on its own website, as and when the REACH registration dossiers are filed. At the end of 2014, ARKEMA published 145 GPS information sheets corresponding to ARKEMA's finished products registered with REACH in 2010 or 2013.

In the interest of Product Stewardship for its own products, ARKEMA goes beyond its regulatory obligations and supplies (M) SDSs even for its products that are not rated hazardous.

In order to inform its customers of the environmental performance of its products, ARKEMA also carries out Life Cycle Analyses (LCAs) on certain products; these multicriteria analyses in particular help convert the full inventory of flows related to a product's production into environmental impacts.

ARKEMA focuses as a priority on LCAs for the ranges of products for which its customers use such LCAs in their respective industries. This mainly concerns the Rilsamid®, Rilsan®, Pebax®, Kynar® and Forane® product ranges.

These analyses help evaluate the impact of the products following such parameters as emissions of carbon dioxide, ozone depletion potential, contribution to acidification, consumption of energy and water, and the use of soils during their production.

The Group has developed in-house competence within its Rhône-Alpes Research Centre in France in order to apply this global approach, recognised and standardised as part of its customer relations.

The Group follows the recommendations of the International Reference Life Cycle Data System (ILCD) in conducting these analyses.

2.3 PLACE SUSTAINABLE DEVELOPMENT SOLUTIONS AT THE HEART OF ITS APPROACH TO INNOVATION AND IN ITS PRODUCT RANGE

Within the context of its compliance with the United Nations Global Compact and Responsible Care® principles, the Group has committed to developing and promoting technologies which are respectful of the environment and to making a contribution to sustainable development through an offering of innovative technologies and products meeting future challenges (also known as “mega trends”).

As presented in paragraph 2.2.1 of this reference document, ARKEMA is developing new processes and innovative production technologies for its chemical products to reduce the environmental risks associated with the activities of its industrial sites and their potential emissions of pollutants.

ARKEMA is also having its service providers develop and test new treatment equipment for its effluents, which are more respectful of the environment. This is done as part of new development carried out by suppliers and within the framework of ARKEMA collaborations with innovative companies.

ARKEMA strives to develop and market products that are useful to the general public and which are safe and respectful of the environment, as described in paragraph 2.2.2 of this reference document.

To complement these actions, as described in section 2.3 of this reference document, ARKEMA places its process and products R&D at the service of sustainable development and the challenges of the planet by offering innovative solutions in favour of new energy sources, the fight against climate change, access to water, the use of renewable raw materials, recycling and the extension of product life cycles.

ARKEMA filed 81 patent applications for innovative solutions in 2014 to meet the challenges described in section 2.3 of this reference document. It filed 79 patent applications in 2013 and nearly sixty a year since 2010.

2.3.1 DEVELOP PRODUCTS FOR NEW ENERGIES AND THEREFORE CONTRIBUTE TO PRESERVE FOSSIL RESOURCES

New energies are one of the Group's major research areas.

2.3.1.1 CURRENT USES IN SOLAR ENERGY AND ENERGY STORAGE

ARKEMA develops applications for its products, notably for solar energy, which helps to conserve fossil fuels, and for energy storage, which is all the more crucial for alternative energy sources with discontinuous flows. The two priority areas are photovoltaics and lithium-ion batteries, which saw the following developments:

- Kynar®, polyvinylidene fluoride (PVDF), potentially grafted or co-polymerised, is an excellent binder for battery electrodes and an excellent “separator” material (polymer film separating the two electrodes);
- Ethylene vinyl acetates (EVA) and organic peroxides, which are used as an encapsulation material for photovoltaic cells; and
- PVDF is used as a backsheet for photovoltaic cells.

2.3.1.2 NEW DEVELOPMENTS IN SOLAR AND WIND POWER AND ENERGY STORAGE

ARKEMA is developing new products for these sectors. They include:

- New-generation lithium salts, still at the exploratory stage, which should make lithium-ion batteries safer thanks to their thermal and chemical stability; and
- Elium® thermoplastic composites, which could be used for wind turbine blades.

ARKEMA maintains partnerships with a number of different stakeholders as part of its research into the potential contribution of existing and future products for new energy applications. For example:

- in 2011, ARKEMA and INES (National Institute for Solar Energy) teamed up to build a shared research laboratory for photovoltaic polymers in France;
- in 2013, ARKEMA signed a research agreement with the English SME Oxys Energy to develop and produce lithium sulphur batteries;

- in 2014, ARKEMA and IREQ (Hydro-Québec Research Institute) announced an R&D collaboration to develop a new and very safe electrolyte from fluoride salts produced by ARKEMA for the electric batteries used in public transport and cars.

ARKEMA also participates in various ADEME (French Environment and Energy Management Agency) projects such as the Isocel photovoltaic and Effiwind wind turbine projects, both future investment projects.

2.3.2 FIGHT AGAINST GLOBAL WARMING

The Group develops and manufactures technical products and solutions which contribute indirectly to reducing the greenhouse gases responsible for global warming. The products reduce the fuel consumption of various means of transport and decrease the energy consumption of heating and cooling systems installed by the construction and public works industries. The Company also provides chemical substances with low global warming potential.

2.3.2.1 LIGHTER MATERIALS FOR TRANSPORT

The Group develops light, resistant materials which, when used in vehicles, reduce their weight and, therefore, their fuel consumption. They also contribute to minimising CO₂ emissions in the transportation sector.

The Group's main innovations in this area include:

- Polymethyl methacrylate (PMMA) nanostructured Altuglas® ShieldUp to replace glass.

Nanostrength® technology based on acrylic copolymers, which can organise themselves on a nanometric scale, increases the impact resistance of certain transparent polymers. ShieldUp® technology is used in car windows as a replacement for glass and helps make vehicles lighter. The introduction of the Altuglas® ShieldUp roof to replace glass could result in a 0.4 litre decrease in fuel consumption per hundred kilometres and a 7 kg decrease in CO₂ over the same distance. Assuming that 100,000 vehicles driving 20,000 kilometres per year were equipped with this innovation, CO₂ emissions would be reduced by 140,000 tonnes per year;

- 11 Rilsan® HT polyamide used as a substitute for metal.

ARKEMA won the Pierre Potier award in 2013 for its Rilsan® HT, a high-performance polyamide made from non-food plant matter. The annual prize rewards innovations in chemistry that further sustainable development. With its unique combination of flexibility and stability at very high temperatures, this material can aptly replace metal and rubber in the automotive industry in under-hood fluid piping. Six times lighter than steel and three times lighter than aluminium, it lightens vehicles and contributes to decreasing fuel consumption and CO₂ emissions;

- Kepstan® polyetherketoneketone (PEKK) as a metal substitute for extreme application conditions.

PEKK is an ultra high-performance polymer. Known as the "extreme polymer", it is exceptionally resistant to high temperatures (up to +260°C), chemical agents, abrasion and fire, and has excellent mechanical properties. These characteristics make it ideal for highly specialised applications, notably in offshore oil and aerospace by replacing metal in fastening components, insulating parts and interior fittings;

- Thermoplastic acrylic and polyamide composites to replace traditional composites.

ARKEMA launched its first line of liquid thermoplastic resins under the brand name Elium® in early 2014. These resins are made using the same equipment and processes as thermoset composites. Composite resins made with Elium® reduce at least half of the weight of parts traditionally made in metal at equal strength.

ARKEMA is looking for partners who are also in this field to share expertise and accelerate the innovation process for the benefit of sustainable development.

ARKEMA has teamed up with *Pôle de Plasturgie de l'Est* in France and is coordinating the Compofast project, which brings together fifteen European partners to develop thermoplastic composites suitable for vehicles. By replacing metal parts with lighter plastic ones, the thermoplastic composite will reduce vehicle weight and thereby reduce fuel consumption and CO₂ emissions.

- ARKEMA also worked collaboratively with several partners to develop its Altuglas® ShieldUp, a polymer twice as light as glass. It is currently being used for panoramic roofs in partnership with Renault, and for Peugeot's Onyx concept car.

2.3.2.2 SOLUTIONS TO REDUCE GREENHOUSE GASES

The Group also develops evolutions or new applications for its products contributing to minimising GHG emissions.

ARKEMA is pursuing the development of low global warming potential refrigerant gases such as the 1234yf, a new-generation fluorinated gas to meet the needs of automotive air-conditioning. Generally, as a world leader in refrigerant fluorogases, ARKEMA continues its strategy to constantly adapt to changes in global

regulations, and develops competitive solutions to be part, on a world scale, of the drive to reduce greenhouse gas (GHGs) emissions.

In another field, CECA has developed a line of warm mix technique bitumen additives (Cecabase RT®), which provides energy savings of 20% to 30% when applying bitumen to roads.

ARKEMA also developed the Kynar Aquatec® PVDF resin, a water-based formula for white paint used on reflecting roofs,

which has a much longer life than traditional paints. This product helps decrease cooling needs in high-sunlight regions.

The use of reflecting roofs with Kynar Aquatec® bases reduces the energy consumption of buildings that use the roofs in high-sunlight regions by 20%, *i.e.*, 20 KWh/m²/year. For 10 buildings with a roof area of 15,000 m², the result would be a total annual reduction of 1,500 tonnes of CO₂ emissions based on an emission coefficient of 0.5 tonne of CO₂ per MWh.

2.3.3 DEVELOP PRODUCTS FOR IMPROVING WATER QUALITY AND ACCESS TO WATER

Water treatment solutions, another Group research area, also have implications for sustainable development.

2.3.3.1 DRINKING WATER FILTRATION PRODUCTS

The main products and solutions developed for this purpose are fluorinated polymer membranes and CECA's filtering agents.

Membranes made with ARKEMA's PVDF Kynar®, which consist of hollow fibres, treat water via micro-filtration. They trap particles from 1 to 10 microns more effectively than traditional sand percolation filtration systems. ARKEMA has been developing this microfiltration for several years. ARKEMA's Kynar® provides better resistance to the chlorinated products used for cleaning membranes.

ARKEMA also works with innovative companies in a collaborative effort to develop ultrafiltration water treatment solutions. ARKEMA entered into a partnership with POLYCHEM during the first half of 2014. The medium-sized French company specialises in manufacturing hollow-fibre membrane filtration modules. The goal of the partnership is to develop new hydrophilic ultrafiltration membrane technology using a new Kynar® nanostructured polymer perfected by ARKEMA. This innovation increases the performance and energy efficiency of membrane water treatment. The partnership will make the technology accessible to water treatment players more quickly.

Another filtration step, which uses activated carbon sold by the Group's CECA subsidiary under the Acticarbone® and Anticromos® brands eliminates micro-contaminants, odours and tastes in the waste water used for drinking water. As noted in

paragraph 2.3.5 of this reference document, CECA also offers its customers a service to regenerate saturated activated carbon.

2.3.3.2 OTHER WATER TREATMENT FUNCTIONS

The Group also markets a variety of products for water treatment:

- acrylic acid, used to manufacture polyacrylates used in water treatment plants to ensure the flocculation of suspended solids;
- hydrogen peroxide used as an agent to decrease Chemical Oxygen Demand (COD). A clean reagent, hydrogen peroxide only has water and oxygen as by-products, and offers the benefit of generating neither wastewater sludge nor toxic by-products;
- Bactivel® bleach preserves water quality until its consumption thanks to its bactericide power, which protects drinking water distribution networks;
- Rilsan® fine powders have been chosen by many cities to coat their drinking water pipe networks and waste water treatment plant equipment because of their strength, durability and flow properties.

ARKEMA rounded out its line of PVDF Kynar® resins in 2014 with the launch of a grade suited for multilayer pipes used to transport drinking water without affecting its taste. It also delays the growth of thin layers of bacteria due to its purity and the fact that it doesn't need any additives to be implemented. Kynar® 740 E was approved in 2014 with the KTW certificate from the German water and gas agency.

2.3.4 USE OF RENEWABLE RAW MATERIALS TO PRESERVE FOSSIL RESSOURCES IN THE FACE OF GROWING POPULATION NEEDS

By developing products based on renewable raw materials, the Group is contributing to the conservation of non-renewable fossil fuels thanks to innovations resulting from its own research and from research with partners.

ARKEMA's ongoing commitment is confirmed by the fact that nearly 13% of the Group's sales is generated in full or in part (more than 20%) from renewable raw materials. This commitment was recognised in 2013 with the EUBIA award (European Biomass Industry Association) presented to ARKEMA in Copenhagen for its work in the field of biosourced materials. These products accounted for approximately 11% of the Group's total sales in 2011.

2.3.4.1 CURRENT SOLUTIONS IN THE GROUP'S PRODUCT LINE

ARKEMA has been manufacturing the monomer used to produce its 11 Rilsan[®] polyamide from castor oil in Marseilles (France) for over 50 years.

The Group acquired two companies in China in 2012: Hebei Casda Biomaterials Co., Ltd., a producer of sebacic acid derived from castor oil, and Suzhou Hipro Polymers Co. Ltd., which produces polyamide 10.10 and 10.12 using this sebacic acid.

The Group also operates three other bio-plants:

- The Parentis plant in the Landes region (France) produces activated carbons from local pine wood. They are used in filters by the agro-food and pharmaceutical industries, for micro-contaminant filters in wastewater treatment and as a catalyst support;
- The Blooming Prairie plant (United States) manufactures terpenes and limonenes as well as various additives for the cosmetics industry and lubricants via epoxidation of flax seed oil; and
- The Feuchy plant (France) converts plant fatty acids into surfactants for fertilisers and warm mix asphalt for bitumen.

As part of its Coating Resins business, the Group also develops and sells alkyd resins derived from plant oils and diamide-type rheology additives for which a significant portion of raw materials are biosourced fatty acids.

2.3.4.2 NEW DEVELOPMENTS

ARKEMA R&D is constantly working to develop the use of renewable raw materials in current and future Group products.

One of the preferred methods is to work with research partners as part of major collaborative projects that include customers, suppliers and university laboratories. The examples below illustrate this point.

ARKEMA took part in the European Biocore research programme from 2010 to 2014. It focused on analysing the potential development of new production concepts using biomass.

ARKEMA formed a partnership with Elevance Renewable Sciences in 2012 to develop speciality biosourced polymers.

ARKEMA also partnered with the start-up Global Bioenergies in France in 2013. The company is developing isobutene manufacturing from plant carbohydrates.

ARKEMA has been active in a number of biorefinery projects, notably as part of the European Eurobioref project which brought together 29 partners and ended in February 2014, and for which ARKEMA was responsible for coordinating the industrial aspects.

ARKEMA also co-partners the Mines Paristech bioplastic chair in France and is one of the six founding members of the Fimalin association. The goal of the association is to create, structure and promote a technical flax industry in France to develop eco-designed materials using high-performance flax fibres. The ambition is to eventually position technical flax as a strengthening fibre in composites to replace glass and carbon fibres, opening the way for eco-polymers, eco-composites and the creation of a new agro-industrial business.

ARKEMA also develops new products in collaboration with its customers. As part of its Coating Resins business, ARKEMA is studying the use of partially biosourced raw materials as a substitute for fossil fuel-based raw materials for polyester production (Oil Free Polyester).

2.3.5 DEVELOPMENT OF RECYCLING, REUSE AND EXTENDED PRODUCT LIFE SOLUTIONS TO PRESERVE FOSSIL FUEL RESOURCES IN FACE OF GROWING POPULATION NEEDS

The Group contributes to the conservation of non-renewable fossil fuels by using the by-products of its industrial processes, by helping to recycle its products and the products of its customers and by extending the life of its customers' products.

2.3.5.1 USING THE GROUP'S BY-PRODUCTS

ARKEMA sells many of the deadly by-products created by the production of its main products by finding applications related to their inherent properties.

However, in addition to selling by-products, which is a normal part of every chemical company's business, whenever possible, the Group transforms the wastes, which would otherwise become industrial waste, into products that can be used by other industrial sectors.

As mentioned in paragraph 2.2.1.2 of this reference document, 62% of hazardous waste produced by ARKEMA worldwide in 2014 was recycled on-site or off the production site (made into raw materials).

For example, the soda water produced at the Mont (France) plant as part of the purification process of a monomer produced at the plant has been recycled for many years. They are used by the paper industry as part of the manufacturing process for Kraft paper and cardboard. These basic waters are rich in organics and are used by paper manufacturers to minimise sulphur loss in their process regeneration loops.

At the site of Casda in Hengshui in China, the flow of residual sulphuric acid generated by the manufacturing process for sebacic acid is neutralised to obtain a sodium sulphate solution. The flow is then directed to a sodium sulphate concentration and crystallisation unit which recycles 50,000 tonnes of sodium sulphate a year into solid form instead of treating the flow of diluted sulphuric acid as a waste product.

2.3.5.2 GROUP AND CUSTOMER PRODUCT RECYCLING

The Group is developing different solutions that facilitate the recycling of its customers' products. A few examples are found below.

Elium® liquid thermoplastic resins are processed using the same equipment and processes as the thermo-hardened composites mentioned in paragraph 2.3.2.1 of this reference document. Thanks to the properties of these innovative resins introduced by ARKEMA in 2014, the parts made from them are easy to recycle as opposed to parts made from thermo-hardened epoxy.

ARKEMA has developed technologies to protect glass bottles (Kercoat®) and hide scuffs (Opticoat®). The products significantly improve the appearance and life span of bottles by increasing the number of times returned bottles, notably those of beer producers, can be recycled threefold.

CECA, a Group subsidiary, has developed a solution that increases the recycling rate of products from roadwork. Using Cecabase RT® additives in bitumen increases the aggregate recycling rate by 10% to 15% compared to traditional techniques. In addition, the additives lower the heating temperature required for bitumen, as noted in paragraph 2.3.2.2 of this reference document.

After being used for drinking water treatment, CECA's activated carbons are saturated with micro-contaminants, as described in paragraph 2.3.3.1 of this reference document. Instead of sending them to waste, CECA customers can use the recycling service implemented by this ARKEMA subsidiary. The used activated carbons are processed in high-temperature ovens, which completely eliminate the pollutants absorbed by their porosity. Thanks to the expertise developed by CECA, the absorption properties of the activated carbon are reactivated. This is crucial for their reuse in the same processing systems.

2.3.5.3 EXTENDING THE LIFE OF ITS CUSTOMERS' PRODUCTS

Generally speaking, ARKEMA works to increase the performance of its products over time.

For example, ARKEMA has developed a line of organic peroxides for cross-linking rubber. The rubber cross-linked using the organic peroxides is used to manufacture parts, typically for the automotive industry. They meet manufacturer requirements for ageing and extended use.

The Group has also developed new polymer grades which increase the lifespan of its customers' products.

For example, Kynar® provides a coating with a particularly long lifespan. Kynar Aquatec® is used for the reflecting roofs described in paragraph 2.3.2.2 of this reference document. The product ensures that the whiteness of the coating remains virtually intact for a particularly long time without maintenance. Kynar 500® was used to coat the aluminium roof of Wimbledon's court n° 1 in an olive green matching the grass courts. It protects the roof for nearly twenty years without losing any of its original qualities.

These examples clearly show that ARKEMA contributes to optimising the consumption of non-renewable raw materials in a number of different ways far upstream of the chain leading to end-consumers.

The Group's research policy and actions are described in greater detail in section 1.4 of this reference document.

2.4 ENCOURAGE OPEN DIALOGUE WITH ALL ITS STAKEHOLDERS

2

2.4.1 TERRITORIAL, ECONOMIC AND SOCIAL IMPACT OF THE GROUP'S ACTIVITY

ON EMPLOYMENT AND REGIONAL DEVELOPMENT

ARKEMA's social responsibility is embodied in the support provided to the development of the territories in which the Group is present or is involved.

The Group's activity generates tens of thousands of direct and indirect jobs around the world. Therefore the Group plays a role in the economic and social development of the regions in which it operates.

Group investment in 2014 made a direct and indirect contribution to employment of around 1,900 full-time equivalent (FTE) employees. In addition, the effect of these investments on the economic fabric of the industrial areas concerned is equivalent to 4,500 jobs (FTE).

In this respect, the major investment projects completed in 2014 – notably the thiochemicals platform in Malaysia – had an economic impact on those areas that was significantly greater than the investments the Group undertook elsewhere due to their size.

Additionally, in France, when it has to redeploy some of its activities, the Group strives to compensate for job losses, where applicable, and contributes to revitalising those economic regions that have been impacted. These actions are laid down in the revitalisation agreements legal framework signed with public authorities, and take the form of a variety of measures, including:

- Financial support for company creation or takeovers; and/or
- Prospecting for the set-up of new activities and supporting their development.

This was notably the case when the Chauny site in the Aisne department in France was shut down.

ARKEMA provides technical assistance to young, innovative companies in certain industrial areas. For example, it provided assistance to companies set up in the "Chemstart'up" chemicals business incubator in Lacq (France).

On a broader level, ARKEMA implements a policy of support to innovative small and medium-sized enterprises (SMEs) that are connected to its activities, through joint projects or by acquiring a stake in them. This entails, for example, individual research centres establishing a close cluster unit with a neighbouring school or laboratory, while putting in place the conditions of a partnership with local SMEs.

ARKEMA is indeed one of the founding members of Axelera, a world-scale competitiveness cluster which brings together and coordinates in the Rhône-Alpes region (France) players from industry, research and education around a chemistry and environment related theme.

ARKEMA is also a founding member of IDEEL (*Institut des énergies décarbonées et écotechnologies de Lyon*). In June 2013 IDEEL signed its first triennial convention for the funding of its programmes to develop innovative solutions at the service of the factory of the future. This institute aims to make chemical manufacturing processes cleaner and more cost-efficient and to transform industrial wastes into products that can be recycled or into new sources of energy.

ARKEMA further extended its partnership commitment at the end of 2014 by signing the foundation charter of the *Campus industriel de la Vallée de la Chimie* launched by Le Grand Lyon. This ambitious "industrial ecology" project is a continuation of Axlera and IDEEL to develop new activities in the "cleantech" and chemistry fields in line with the national energy transition programme and it also aims to develop synergies and inter-site sharing as part of the 2030 coordinated regional planning and development efforts.

These partnerships have a dual dimension for ARKEMA, namely foster innovation and strengthen its local integration, thereby making the Group a key player upstream of certain strategic industrial sectors of the future (thermoplastic composite materials, renewable raw materials, etc.).

2.4.2 RELATIONS WITH STAKEHOLDERS

2.4.2.1 CONDITIONS OF DIALOGUE

For the past several years, changing regulations have encouraged the creation of a consultation, dialogue and information process about Group activities with a significant impact on the environment.

In the United States, 60% of the Group's sites are involved in regulatory Community Advisory Teams or with Community Advisory Panels in order to share information about site activities with local residents and provide answers to their concerns. These can be monthly, annual or biannual meetings. Among the ARKEMA plants taking part in these initiatives on a regular basis in 2014 were Bayport, Blooming Prairie, Bristol, Calvert City, Chatham, Clear Lake, Geneseo, Louisville, Mobile, Memphis, St. Charles and West Chester. The Beaumont (Texas) "Community Advisory Team" is the oldest committee in the region and the ARKEMA site has been interacting with local authorities and residents for over 24 years.

In France, after actively participating in the meetings of many local information and dialogue committees (CLIC) and, more specifically, in the information and exchange meetings for the implementation of Technological Risk Prevention Plans (PPRT) at the Pierre-Bénite, Jarrie, Saint-Auban, Marseilles and Carling sites, ARKEMA has been monitoring the implementation of the PPRT and taking part in the meetings held by local resident associations and local authorities on a regular basis to monitor work progress. In addition, the industrial site managers take an active part in the permanent secretariats for the prevention of industrial pollutants (SPPI).

The Common Ground® approach

ARKEMA goes beyond the scope of the regulatory framework, and puts in place conditions for dialogue with all stakeholders. For over ten years now, ARKEMA has taken an innovative approach to relations with the stakeholders of its industrial sites via a programme called "Common Ground®" (*Terrains d'Entente®*). The approach is used in all of the countries in which the Group operates. It focuses on three main areas:

- **Listening to understand expectations**

One of the objectives of Common Ground® is to make listening to local residents, evaluating their expectations and understanding

their concerns a top priority. Surveys conducted with local populations carried out in 2002 and in 2008 indicate that the climate is more favourable now with decreasing concern about industrial and chemical risks, in particular. A new wave of opinion surveys is planned by 2016.

- **Discussing and explaining the company's activities**

Industrial site managers open their plant's doors on a regular basis and maintain contact with elected officials, local residents, local associations and academia. Participants have an opportunity to find out about site's activities, such as which products and processes are used. They are also informed of significant events occurring at the site, about its projects, its performance in matters of industrial safety and its environmental footprint.

- **Preventing risk and progress**

Ongoing improvements in industrial safety and environmental and health protection, including the development of a risk prevention culture, is a priority for all ARKEMA sites. As a result, the Group has perfectly implemented the "real-time communication" approach initiated by the chemical industry in France, and it consistently informs the media of all incidents, including minor ones, at its Seveso-category industrial plants. As part of a proactive initiative, ARKEMA regularly organises the simulation of incidents or accidents in order to test the complementarity of emergency response resources on the site and from outside emergency services, as well as alert and information procedures and methods for the protection of local people.

Quantitative assessment of Common Ground® actions

In 2014, 985 Common Ground® initiatives were carried out worldwide and 90% of sites actively participated in the events, including:

- 516 in the United States, at 93% of sites;
- 336 in Europe, at 85% of sites. In Europe, France and Italy took an active part in organising the events;
- 105 in Asia, at 94% of sites. In Asia, China was the country most involved in organising events.

Breakdown of initiatives by region	2014	2013	2012
North America	540	362	53
Asia	105	50	66
Europe	336	213	155
Rest of the world	4	19	6
TOTAL	985	644	280

2.4.2.2 EXAMPLES OF COMMON GROUND® INITIATIVES

Breakdown by type of initiative	2014	2013	2012
Initiatives involving local residents	546	296	100
Educational initiatives	309	196	126
Initiatives involving associations	130	152	54
TOTAL	985	644	280

Initiatives involving local residents and the public

To promote local interaction, the Group's employees at the plants and subsidiaries committed to increasing local contact by meeting with residents and the general public to show the benefits of chemicals in everyday life.

In the United States, in addition to taking part in information meetings organised by local resident associations, many sites opened their doors to explain their activities and plant operations.

ARKEMA is a partner of the *Palais de la découverte* in France. This partnership, which was launched in 2011, will run through 2015. An ultra-modern chemistry laboratory was set up to provide a programme of experiments and presentations called "*Étonnante Chimie*" (Amazing Chemistry). Nearly ten thousand visitors come every year for a fun and interactive discovery of the contribution chemistry makes toward sustainable progress.

Group employees boarded the *Nouvelle France industrielle* (New Industrial France) train between 7 April and 27 April 2014, for the fourth occurrence of the *Semaine de l'industrie* (Industry Week). Over the span of 15 days, this train exhibit introduced the innovative industrial sectors for which France's expertise is recognised around the world. ARKEMA represented the chemical industry. ARKEMA participated in seven stops, introducing chemical industry innovations and spoke with many different audiences. More than twelve thousand visitors boarded the train and thus learned more about this industry.

In 2014, as for more than ten years now, many sites in France took part in the 23rd edition of the *Fête de la science* (Science Celebration) organised by the Ministry for Post-Secondary Education and Research. Many employees got involved to help visitors discover the extraordinary diversity of disciplines, led discussions with the general public and shared their knowledge with young people. The Serquigny, La Chambre and Marseilles Saint-Menet sites welcomed several secondary school classes for visits of their plants. Demonstrations and experiment workshops were provided by our engineers at Jarrie, the Science Village in Pont de Claix and La Chambre and at the Eureka Gallery in Chambéry, to introduce visitors to the contribution chemistry makes to their daily lives.

ARKEMA was a partner of the *Voyage au cœur de l'innovation industrielle* (Journey to the Heart of Industrial Innovation) exhibition held from 4 to 7 December 2014, in the main hall of the Grand Palais in Paris. The exhibition was dedicated to the most significant discoveries of French industry. ARKEMA presented its "green chemistry" plastics made from biosourced materials.

Actions for education

Throughout the world, ARKEMA is boosting its relations with the world of education. The Group works with educational teams and helps promote the chemical industry to young people.

In Italy, Rho plant employees took part in the "chemistry" programme at Institute Cannizaro, the Rho secondary school. From February to May 2014, they provided 200 students with training modules on different themes such as the production of acrylic monomers and polymers and industrial safety. In addition to their involvement with the schools, several of the students were hosted by the ARKEMA plant for a three-week internship.

In the United States, Arkema Inc. has been running a teaching module called "Science Teacher Program" since 1996. Hundreds of researchers and teachers have already attended. They have been able to share their experience with tens of thousands of students. This program receives funding from the Arkema Inc. Foundation, and is offered in particular to young people on scholarships or registered with social programs.

In Asia, the sites in China and Japan provide their support to schools near plants such as, for example, donated computers, school materials or a financial contribution to improve educational infrastructure.

In France, ARKEMA participated in the 18th *Mondial des métiers*, a job discovery and career choice fair. Attendance increased again this year, with more than 119,000 visitors. During the entire fair, Group employees from the Rhône-Alpes region (ARKEMA plants in Jarrie and Pierre-Bénite, Coatex, and the CETIA and CRRRA technical research centres) introduced the diversity and modernity of jobs in the field of chemistry. A highlight of the event was the meeting between skipper Lalou Roucayrol and young secondary school students. He showed them how innovations developed by ARKEMA researchers have helped improve the performance of his new class 50 multi-hull boat.

Arkema France also took part in the *Village de la chimie* (Chemistry Village), which welcomed 7,500 visitors in 2014. They spent two days discovering that chemistry, already very much a part of their daily lives, continues to develop in all fields, and that it uses highly advanced scientific and technical resources which require workers from many backgrounds with all levels of expertise.

ARKEMA has been a partner of the Chemical World Tour since 2010. It was launched by the *Union des industries chimiques* and the *Fondation de la maison de la chimie* (Chemistry House Foundation) in cooperation with the French Ministry for National Education and the French Ministry for Secondary Education and Research. The purpose of this Chemical World Tour is to introduce chemistry and the chemical industry to students. Every year, five chemistry students and five journalism students are selected to make up pairs who then set off across the world to investigate the vital role of chemistry in the innovations that drive everyday life forward. The reports prepared by the pairs of students are put forward to the public's vote via the internet and the social networks. The 2014 edition of the innovation world tour focused on chemistry in energy. It led the pairs to investigate, with ARKEMA's support, recent Group developments in China applied to the development of new batteries to meet the challenges of energy transition.

Created in October 2008 under the aegis of Fondation de France and ARKEMA, Fondation ENSIC (*École nationale supérieure des industries chimiques*) aims to promote access to the school's curricula by granting scholarships to students experiencing financial hardship. The foundation provided full support to 22 students in 2014.

Initiatives for associations

Faithful to the Group's values of solidarity and responsibility toward local residents, ARKEMA sites and their employees work with associations in the regions in which they are located. Many examples around the world attest to the volunteer work done by the men and women of ARKEMA to help those who are most in need and to actively participate in local life.

In the United States, in addition to their traditional fund-raising at the end of the year, the employees of the Louisville, Bristol and Torrance sites mobilised to collect funds to purchase toys. Several thousand poor children from neighbouring communities were the beneficiaries of these gifts.

Employees from the Memphis plant and their families took part in the race organised to benefit the American Heart Association and gathered funds for heart disease research.

Employees in ARKEMA Bayport and Clear Lake took part in the annual river and park cleaning event known as the "Bayou Trash Bash".

In India, the employees of the Mumbai plant took part in the International Coastal Clean-up day and partnered with a local marine scout group for the operation organised in Kolshet Creek.

In China, the Changshu site made a financial contribution for the renovation of the Fushan primary school so that students could receive improved conditions of safety and comfort.

In Italy, the Altuglas plant in Rho and the ARKEMA plant in Spinetta provided financial support for associations helping people with autism and children with disabilities.

In France, the employees of several sites (Carling, Colombes and Pierre-Bénite) renewed their participation in sports events and raised funds for associations fighting cancer and disabilities and for the ELA (European Leukodystrophies Association). ARKEMA also made cash donations to the associations and matched the pledges made by employees.

2.4.3 FAIR PRACTICES, REJECTION OF CORRUPTION

ARKEMA is committed to complying with antitrust regulations and to rejecting all forms of corruption and fraud. Accordingly, ARKEMA condemns and strives to prevent fraud and corruption also in its business dealings with its partners.

Compliance with these rules and the rejection of corruption is based on two principles in particular: (i) The inclusion of these rules in the Group's Code of Conduct and Business Ethics, and (ii) the implementation of control procedures for potential fraud and corruption risks.

Moreover, ARKEMA observes international conventions as well as laws in force in the countries in which the Group operates.

THE ARKEMA CODE OF CONDUCT AND BUSINESS ETHICS

ARKEMA implemented a new Code of Conduct and Business Ethics in November 2013, which replaced the first version of May 2006. It states the rules, based on the Group's ethical values, and includes the ten principles of the United Nations Global Compact, one of which covers combating corruption. The rules are also based on the principles of other fundamental international laws⁽¹⁾, which all employees of the Group must commit to following.

Hence ARKEMA and its employees are guided in their actions by rules and principles of conduct.

This code may be accessed on the Group's internet and intranet websites.

(1) Universal Declaration of Human Rights, principles of the International Labour Organization, guiding principles of the OECD with regard to multinational companies.

Essentially, the Code of Conduct and Business Ethics sets out that:

- Employees may not offer, provide, or accept, directly or indirectly, any unfair advantage, be it pecuniary or otherwise, and whose purpose is to secure business relations or any other business advantage. Those partners particularly concerned are people holding public authority, customer agents or employees, financial or banking organisations, and political parties; and
- Employees must follow the competition laws applicable in all of the countries in which the Group operates at all times.

EMPLOYEE SUPPORT

ARKEMA has created a roadmap to assist employees in ensuring their compliance with all of the requirements of its Code of Conduct and Business Ethics. It covers the following:

- The new version of the Code, published on the Group's intranet sites in November 2013;
- Employee awareness-raising via information regarding ARKEMA's compliance with the principles of the United Nations Global Compact and the Code, added to the Group intranet site in November 2014;
- Preparation, at the end of 2014, for the implementation of an e-learning course on the Code during the 1st quarter of 2015 in parallel with the annual signing by employees of their commitment to comply with the rules and principles of the Code.

PROCESSES TO CONTROL AND REDUCE RISK OF CORRUPTION AND FRAUD

ARKEMA has put in place a compliance and business ethics programme comprising the Code of Conduct and Business Ethics as well as the various rules and procedures applicable within ARKEMA.

The resources employed to ensure the correct operation of this program are:

- Awareness-raising activities about the rules of competition in each BU to increase the accountability of employees, regardless of their level, with respect to competition rules;
- The implementation of specific procedures in the BUs; and
- Information about the rules and behaviours to be followed via a "practical competition guide" provided to employees.

This programme is implemented by the Compliance Committee and the Ethics Mediator, who are responsible for monitoring its application within the Group.

- The Compliance Committee, whose members are appointed by the Chief Executive Officer of Arkema, consists of the Director of Internal Audit and Internal Control, a Human Resources department representative, the director for Sustainable Development, the Director of Group Safety Environment Industry, a representative of the Legal department and a representative of the Finance/Treasury/Tax department.

The Compliance Committee is responsible for monitoring ARKEMA's compliance in the following areas: Competition law, commercial intermediaries, fraud, commercial practices and business integrity, work environment integrity and respect for the environment.

The Compliance Committee reports to Comex;

- The Ethics Mediator is appointed by the Chief Executive Officer of Arkema. He is fully familiar with the Group's activities and professions, and his career situation ensures the independence of his judgement.

The Ethics Mediator is generally and at all time bound by confidentiality towards third parties on the identity of the people raising issues with him, and maintains secrecy on any information that might help identify them; however, this obligation may be tempered, as regards the sole people required to be aware of this information, as strictly required to address and solve the question raised or to handle the case concerned, these people being then also bound by the same obligation.

In regions where ARKEMA conducts its activities, the regional managers are appointed correspondents of the Ethics Mediator.

For all practical questions regarding an ethical issue in general, and particularly any problem in applying the ARKEMA Code of Conduct and Business Ethics, the Compliance Committee and the Ethics Mediator may be called upon either by the Senior Management or by any employee.

In order to minimise the risk of situations arising that may lead to corruption, ARKEMA also takes steps to select reliable partners, through a process to appraise its commercial intermediaries, conducted in particular by the Compliance Committee.

Finally, as part of the global risk management measures put in place by ARKEMA, the Internal Audit and Internal Control division conducts regular audits in the Group's subsidiaries, when it analyses the various management processes in place in these subsidiaries, to help identify possible risks of fraud, and set out, where appropriate, the necessary corrective actions (refer to paragraph 1.7.1 of this reference document for the global risk management measures).

2.4.4 SUBCONTRACTING AND SUPPLIERS

SOCIAL AND ENVIRONMENTAL ISSUES IN THE PROCUREMENT POLICY

In order to build long-term relations with its suppliers, ARKEMA adopts a responsible behaviour towards them. It establishes balanced and durable relations, based on trust.

ARKEMA's approach is based on the ethics principles set out in its Code of Conduct and Business Ethics described in paragraph 2.4.3 of this reference document. Relations with suppliers must be based on trust and develop transparently and in compliance with fairly negotiated contractual terms, including those related to intellectual property and Responsible Care® principles.

ARKEMA is also a signatory to the French national inter-company charter of the buyers professional organisation (CDAF) as well as *Médiation Inter-Entreprises*, which holds out ten responsible procurement commitments.

The procurement policy of the Group's Goods and Services Purchasing division provides for all employees to be aware of procurement ethics rules and the need to conduct their duties both in terms of ethics principles and a sustainable development approach. These requirements are systematically recalled to the buyers during training and information events.

In some cases, goods and services buyers also approach suppliers of services or equipment that promote energy savings as well as the optimisation of waste treatment and recycling activities.

As regards raw material procurement, the Group favours a collaborative approach with certain strategic suppliers, and engages in the joint improvement of the supply chain in terms of safety and the environment.

In its logistics purchases, ARKEMA includes *inter alia* a "carbon footprint" dimension when selecting its suppliers and transport methods. Generally speaking, when the technical and economic conditions are met, the choice of supplier and transport method will favour slow and low-emission methods such as rail, barge, maritime bulk or container rather than road and air. These concerns also converge with the need to control transportation risks as mentioned in paragraph 1.7.2.2 of this reference document.

TAKING INTO ACCOUNT OF THE SOCIAL AND ENVIRONMENTAL RESPONSIBILITIES OF SUPPLIERS AND SUBCONTRACTORS

In order to build long-term relations with its suppliers, ARKEMA also expects a responsible behaviour from its suppliers. Its approach is guided by the ethics principles set out in its Code

of Conduct and Business Ethics described in paragraph 2.4.3 of this reference document.

Suppliers are encouraged to comply with principles that are equivalent to those set out in ARKEMA's Code of Conduct and Business Ethics. A Supplier Code of Conduct was implemented by ARKEMA in September 2014 for this purpose. The Supplier Code of Conduct is available online on ARKEMA's website.

ARKEMA implemented an information process for its new suppliers, and gradually for its existing suppliers, covering its requirement that they not only comply with the laws and regulations applicable to them, but also share the principles described in the Supplier Code of Conduct.

As at 31 December 2014, 16,200 ARKEMA suppliers had received the Supplier Code of Conduct; 83% are in the Goods and Services supplier category, 6% are logistics providers and 11% are raw materials providers. This Code will gradually be included in all new consultations.

The principles of the Supplier Code of Conduct are based on the Global Compact, which ARKEMA has made a commitment to support. They cover Human Rights and Labour, namely, freedom of association, child labour, forced labour, discrimination, health, safety, hygiene, harassment and violence. These requirements also include the environment, quality and the safety of products and services provided. Within the context of business integrity and transparency, suppliers must also comply with the principles of law and competition, the prevention of corruption, the prevention of conflicts of interest, confidentiality and the transparency and honesty of the information provided.

Supplier selection is based on meeting a need under the best performance, cost and quality conditions, and in compliance with Responsible Care principles® and the Supplier Code of Conduct.

The Group's Goods and Services Purchasing department has analyses the performance of its main suppliers since its creation, particularly in regards to safety. The safety of personnel of external companies present on its sites is just as important for ARKEMA as the safety of its own personnel. Accidents involving personnel of external companies present on ARKEMA's sites are included in the computation of ARKEMA's accident rate.

ARKEMA selects its logistics services taking into account carrier performances in terms of safety, security and the environment. The procedures used to select road hauliers for hazardous materials are based on evaluations conducted by organisations such as SQAS (Safety and Quality Assessment System) in Europe. ARKEMA has been using the same evaluation criteria in China which has been gradually implemented since 2013 as part of the

RSQAS (Road Safety and Quality Assessment System). Likewise, the vessels used worldwide for the bulk transport of ARKEMA products are first assessed (Vetted) by a third party.

For its raw materials purchases, ARKEMA generally uses pre-homologation questionnaires to evaluate its suppliers. These questionnaires are designed to assess their management system and/or their compliance with the principles of the Responsible Care® programme, or their certification based on ISO-type standards.

The Supplier Code of Conduct requires that suppliers comply with ARKEMA's expectations in terms of CSR from the time of implementation.

They commit to cooperating with audits on compliance with this Code.

In order to base its requirements on accepted standards and to avoid its suppliers having to answer specific ARKEMA questionnaires and audits on top of the many requests from their other customers, on 21 November 2014, ARKEMA publicly announced that it had joined the Together for Sustainability (TfS) initiative founded by six European chemical companies.

This global programme is intended to develop social responsibility throughout the entire chemical industry service chain. It is based, in particular, on the principles of the United Nations Global Compact and Responsible Care®;

It enables pooling with other chemical companies to have supplier assessments conducted by Ecovadis and the sharing of evaluation results which Ecovadis puts online on its internet site. Ecovadis analyses the documents and answers provided by suppliers regarding CSR criteria in line with international standards and ensures a 360° watch on information provided by external stakeholders.

It also enables other chemical companies to conduct supplier audits together through independent audit companies and to share the audit results, which Ecovadis posts online on its internet site for the members of the TfS programme.

Over the coming years, ARKEMA will regularly rely on its supplier risk analysis to choose those that will be assessed and audited as part of the TfS programme.

In addition, ARKEMA's Internal Audit and Internal Control department has been conducting audits of Group subsidiaries every year. During the audits, it conducts a range of tests on supplier approval and assessment processes as well as on the practices and risks associated with the raw materials and goods and services purchasing functions.

2.5 PROMOTE THE INDIVIDUAL AND COLLECTIVE DEVELOPMENT OF ALL ITS EMPLOYEES

ARKEMA conducts its operations through various industrial sites located essentially in Europe, America and Asia, as well as sales subsidiaries in some forty countries.

ARKEMA's human resources policy is based on individual development actions and on actions centred on collective working conditions.

Individual development includes recruitment, training and career path. Its end-purpose is to consolidate everyone's competences and know-how. Accordingly, a career management policy should help build career paths that consolidate the skills of the employees and, consequently, of the Company. The training policy

complements these actions by providing the necessary theoretical and practical knowledge to take up a post or to change career path. Individual development internally relies on a policy of recognition and fair compensation. Benchmarking studies against other companies are conducted at regular intervals.

Actions based on collective working conditions are based on a continuous improvement rationale. They include all actions that improve working environment and prevention with the employees' health in mind. They also endeavour to foster a good social climate, while reinforcing diversity of origin, profile and background of the Group's employees and safeguarding the quality of corporate open dialogue in house.

2.5.1 EMPLOYMENT

The figures given in the following paragraphs concern the ARKEMA headcount.

Every company records personnel employed under an employment contract. Trainees/interns and temporary workers are not included in the headcount. Personnel numbers are recorded regardless of their working hours on the basis of the "one-for-one rule".

Further details on the data collection and computation methods used and on the constraints they might present are given in section 2.6 of this reference document.

In September 2013, an agreement was signed with trade unions CFDT, CFE-CGC and CGT on jobs and skills management planning (GPEC) and on intergenerational management in the Group's companies in France. This agreement lays down in particular new targets in terms of recruitment of young people (under the age of 30) and "seniors" (50 years old and over), as well as the volume of people on work-study programmes within overall staff numbers (see paragraph 2.5.1.2 of this reference document).

2.5.1.1 TOTAL HEADCOUNT AND EMPLOYEE BREAKDOWN BY GENDER, AGE, AND REGION

Changes between 2012 and 2014

The evolution of headcount over the last three years and its geographical breakdown are as follows:

Total headcount by geographical region	31/12/2014	31/12/2013	31/12/2012
France	6,716	6,665	6,722
Rest of Europe	1,839	1,916	1,954
North America	2,609	2,566	2,574
Asia	2,874	2,402	2,332
Rest of the world	242	359	343
ARKEMA TOTAL	14,280	13,908	13,925
<i>Of which permanent ⁽¹⁾</i>	<i>13,832</i>	<i>13,434</i>	<i>13,349</i>
<i>incl. fixed term contracts</i>	<i>448</i>	<i>474</i>	<i>576</i>

(1) See methodology note for section 2.6 of this reference document.

Total worldwide headcount increased by 372 people between 2013 and 2014, particularly due to the acquisition of Taixing Sunke Chemicals Co., Ltd. in China.

Breakdown by category and sex

As of 31 December 2014, managers accounted for 25.1% of Group employees, compared to 26.3% in 2013. Women accounted for 23.7% of Group employees for the same year, compared to 23.3% in 2013.

Geographical region	Managerial	Non Managerial	Male	Female
France	1,439	5,277	5,090	1,626
Rest of Europe	476	1,363	1,456	383
North America	1,111	1,498	2,053	556
Asia	484	2,390	2,109	765
Rest of the world	76	166	192	50
ARKEMA TOTAL	3,586	10,694	10,900	3,380
<i>Of which permanent ⁽¹⁾</i>	<i>3,531</i>	<i>10,301</i>	<i>10,645</i>	<i>3,187</i>
<i>incl. fixed term contracts</i>	<i>55</i>	<i>393</i>	<i>255</i>	<i>193</i>

(1) See methodology note for section 2.6 of this reference document.

Breakdown by age range, category and sex

Age range	Managerial			Non Managerial			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Under 25 years	28	12	40	523	218	741	551	230	781
From 25 to 29	129	81	210	892	333	1,225	1,021	414	1,435
From 30 to 34	250	120	370	909	294	1,203	1,159	414	1,573
From 35 to 39	299	159	458	1,073	292	1,365	1,372	451	1,823
From 40 to 44	391	172	563	1,273	348	1,621	1,664	520	2,184
From 45 to 49	440	155	595	1,180	312	1,492	1,620	467	2,087
From 50 to 54	479	139	618	1,206	292	1,498	1,685	431	2,116
From 55 to 59	393	84	477	933	236	1,169	1,326	320	1,646
60 to 64 years	192	28	220	250	100	350	442	128	570
65 years and above	34	1	35	26	4	30	60	5	65
TOTAL	2,635	951	3,586	8,265	2,429	10,694	10,900	3,380	14,280

2.5.1.2 CHANGES IN THE NUMBER OF EMPLOYEES: RECRUITING AND DEPARTURES FROM THE GROUP

The recruitment policy is designed to secure the highest level of skills for the Group in order to underpin its development.

In keeping with its founding values (simplicity, solidarity, performance and accountability), ARKEMA attaches a great deal of importance to cultural openness in applicants, their ability to work in teams and bring solutions, and their entrepreneurial skills.

ARKEMA has drawn up a recruitment charter to help promote the principles of fairness and non-discrimination in the selection of job applicants.

To facilitate the job application process and standardise recruitment procedures, ARKEMA uses a dedicated tool on its website (www.arkema.com). Used by every Group entity worldwide, this tool under the Careers heading of the Group's website helped receive a large number of job applications in 2011, 2012 and 2013. Interfaced with the AGEFIPH website (French association for management of funds for disabled people in work), it compiles applications in response to vacancies in the Group that fulfil the Group's diversity and equal opportunities commitments.

In 2013, ARKEMA decided to update its "employer brand" by devising a global campaign to attract the best talents. The project was taken up by the human resources function of every country in which the Group operates, and led to a positioning that puts forward ARKEMA's project to the applicants being sought.

As regards recruitment, the agreement on jobs and skills management planning (GPEC) and on intergenerational management signed in September 2013 provides that across the Group's companies in France young people under the age of 30 must represent every year 30% of permanent recruits and that "seniors" (50 years old and over) must represent 10% of the annual quota of permanent recruits.

Relations with the world of education

Mindful of optimising recruitment, the Group fosters special relations with the best educational and training structures for all its activities.

In France, ARKEMA takes part in many school events, such as recruitment forums, presentations, and site visits. These initiatives are intended to promote and discuss ARKEMA and its business lines with the students of generalist engineering schools (Mines de Paris, Centrale Paris, Polytechnique), chemistry schools (ESPCI, Chimie Paris, ENSIC, ENSIACET, etc.), post-secondary business schools, notably ESSEC and ESCP-Europe, and with technical schools in the fields of safety and maintenance. This led to Arkema France's decision in 2014 to sponsor the students of the Ecole Polytechnique for three years. The official sponsorship programme launch took place on 23 October, with a speech by the Chairman and Chief Executive Officer of ARKEMA and with former students of the school now working for the Group in attendance. The sponsorship will be implemented for three years through various activities intended to increase the Company's visibility among students. Sponsorship of ENSIACET students was also launched in 2014 in the same spirit. Arkema France has also maintained its commitment to the University of Aix Marseilles by participating in the steering committee for the industrial site inspector licence. It initiated the programme a few years ago jointly with several other companies.

To further strengthen its relations with schools and give them greater visibility, in October 2013 ARKEMA launched the "Campus" programme that pairs second-year students (Campus students) from the above target schools with Group employees (Campus managers) who graduated from those schools. The role of the Campus Student is to inform the Campus Manager of the expectations of students and organise events with the Manager and the ARKEMA recruiting unit such as: Visits to industrial sites, round tables on careers with the Group and presentations on ARKEMA R&D. The ENSIC Campus Manager and Campus

Student organised a visit to the Carling plant for students of the school.

The Arkema-Région Aquitaine boat took part in the "Route du Rhum" sailing race providing an opportunity to strengthen existing bonds with the target schools by enabling Campus Managers and Campus Students and people responsible for company relations in these schools to attend the start of the race in November 2014.

ARKEMA is one of the industrial partners of the "Sino-French Programme in Chemical Sciences & Engineering" of the Fédération Gay Lussac and East China University of Science and Technology in Shanghai (ECUST). These programs aim to train chemical engineers with a dual French and Chinese culture, and so help fulfil ARKEMA's expectations in terms of its development in Asia, in particular in China. In 2012, ARKEMA hosted students from the first ECUST/Gay Lussac graduating class twice, firstly at the Shanghai site in China, and later at the Pierre-Bénite site in France. This partnership continued in 2013 with the preparation of a day-long meeting on the Pierre-Bénite site, on 18 February 2014.

In the United States, every year the Developing Engineer Program enables ARKEMA to take on four to six engineering undergraduates from the top American universities for concrete training internships on its industrial sites over five years.

Every year, ARKEMA also offers many opportunities for training, apprenticeship contracts, graduation projects, and international volunteer internships (*volontaire internationale en entreprise*, VIE). Graduation internships, international volunteer internships and graduation projects are managed at corporate level to ensure closer monitoring of the Group's recruitment pool.

In 2012, Arkema France adopted a proactive policy regarding work-study trainees, for both managerial and non-managerial positions. This policy was confirmed in an agreement on jobs and skills management planning (GPEC) and on intergenerational management in Group companies in France, signed in September 2013, which includes an undertaking to increase the number of work-study trainees so that it exceeds the legal threshold of 5% of the workforce by 2015.

As at 31 December 2014, the number of students in a work-study programme at Arkema France accounted for 4.6% of its headcount, compared to 4.5% on 31 December 2013.

Change in permanent employee recruiting between 2012 and 2014

The Group recruited 1,022 permanent employees in 2014, compared to 864 in 2013.

These recruits concerned all of the Group's worldwide activities.

Permanent recruits by geographical region	2014	2013	2012
France	376	187	278
Rest of Europe	47	41	42
North America	293	279	254
Asia	277	303	265
Rest of the world	29	54	44
ARKEMA TOTAL	1,022	864	883

The number of hires increased in France in 2014. On the other hand, 2013 was noticeable for its limited hiring.

Geographical breakdown of permanent recruits by category and sex

In 2014, 27.6% of new hires were management, compared to 32.5% in 2013. Women accounted for 25% of total new hires, compared to 20% in 2013 and 30.9% of management hires, versus 24.2% in 2013.

By geographical area in 2014	Managerial	Non Managerial	Male	Female
France	88	288	272	104
Rest of Europe	16	31	35	12
North America	117	176	224	69
Asia	55	222	213	64
Rest of the world	6	23	23	6
ARKEMA TOTAL	282	740	767	255

Breakdown of permanent recruits by age, category and gender in 2014

Age range	Managerial			Non Managerial			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Under 25 years	11	8	19	119	36	155	130	44	174
From 25 to 29	25	23	48	158	44	202	183	67	250
From 30 to 34	33	23	56	109	30	139	142	53	195
From 35 to 39	30	10	40	59	25	84	89	35	124
From 40 to 44	21	8	29	49	15	64	70	23	93
From 45 to 49	30	6	36	41	9	50	71	15	86
From 50 to 54	24	4	28	25	6	31	49	10	59
From 55 to 59	17	4	21	12	2	14	29	6	35
60 to 64 years	3	1	4	0	1	1	3	2	5
65 years and above	1	0	1	0	0	0	1	0	1
TOTAL	195	87	282	572	168	740	767	255	1,022

In 2014, the share of permanent new recruits under 30 was 41.5% (compared to 39.5% in 2013) and the share of seniors (50 and over) was 9.8% (compared to 8.2% in 2013).

Disposals

In 2014, ARKEMA recorded 1,905 staff departures, compared to 1,352 in 2013.

Leavers by geographical region	France	Rest of Europe	North America	Asia	Rest of the world	Total
All leavers	624	302	489	333	157	1,905
of which resignations	49	39	109	173	9	379
of which redundancies	64	93	74	10	11	252
Of which, left due to a divestment*				86	127	213

* Divestments of tin stabilisers in China and of coating resins in South Africa.

2.5.1.3 COMPENSATION AND CHANGES

Overall compensation is a key element of the Group's human resources policy. It aims to valorise and reward fairly the contribution of every employee to the Group's success.

Implemented by the management, it represents a key tool in allowing recognition of the performance and commitment of employees in areas that are essential to the Group's development such as growth, innovation, safety, industrial reliability, and competitiveness.

To strengthen the link between contribution and compensation, all executive posts are rated in accordance with the Hay method. This initiative is being gradually rolled out to all non-executive posts, in particular in France.

The compensation structure comprises a number of components: fixed part, individual variable part, collective variable part which are applied differently based on the posts and the countries. It fulfils a number of objectives:

- compensate individual and collective performance;
- develop a sense of responsibility in each employee and involve all employees in the achievement of goals;
- ensure competitiveness in the market place;
- provide fair compensation and ensure consistency internally; and
- manage costs.

In the majority of the Group's companies, 18% of employees receive some form of individual variable compensation the amount of which depends on personal performance and the contribution to the collective performance of a BU, a country or the Group.

Collective variable compensation associates 65% of all employees with the Group's growth and to its economical and financial performance. In France, profit-sharing and incentive agreements are part of this framework.

Over and above fixed and variable compensation elements, Group employees also benefit from deferred compensation elements in the form of employee shareholding, employee savings schemes, and, for some of them, performance shares.

Nearly all of the Group's employees (99%) benefit from guarantees in respect of minimum compensation.

Incentives and profit sharing

In addition to the profit-sharing scheme required by law in France, the Group's French companies have set up an incentive scheme giving all employees a share of profits and incentives to meet certain performance objectives, so as to promote the Group's growth. These schemes are specific to each subsidiary, but based on the same principles. The profit-sharing consists of two items: A bonus on results based on economic results and a performance bonus defined by each facility and taking into account the achievement of goals specific to each one of them.

In application of these principles, Arkema France renegotiated the profit-sharing agreement via a collective agreement signed on 17 April 2014 with CFDT and CFE-CGC union organisations. It is in place for three years and covers the 2014, 2015 and 2016 financial years. The total amount of profit-sharing available is maximum 5.7% of the wage bill.

In accordance with the provisions of social security amending finance law n° 2011-894 of 28 July 2011 for 2011, management and trade unions met at Group level in order to negotiate the terms of the profit-sharing bonus for employees. Given that the parties were not able to reach an agreement, a profit-sharing bonus of 75 euros was implemented unilaterally for all employees of the Group in France.

Employee shareholding

Since its spin-off in 2006, ARKEMA has been conducting a dynamic employee share ownership policy, and every other year offered its employees in twenty or so countries, representing some 95% of its personnel, the opportunity to subscribe for the Company's shares under preferential terms.

Further details may be found in paragraph 5.2.7 of this reference document.

Employee savings schemes

A Group Savings Plan (*Plan d'Épargne Groupe* – PEG) and a Collective Pension Savings Plan (*Plan d'Épargne pour la Retraite Collective* – PERCO) allow employees of Group companies in France to make voluntary contributions and invest their profit-sharing and incentive income.

Negotiations got under way at the beginning of 2014 to review the procedures for matching the sums paid into these systems.

They led to the signature of amendments on 17 April 2014 by the CFDT and CFC-CGC union organisations, which state that the sums paid will be matched by the employer up to a maximum annual amount of 1,000 euros (instead of 800 euros before) for the PEG and 400 euros (instead of 250 euros previously) for the PERCO.

The investment structures available are the Arkema Actionnariat France company mutual fund (*Fonds Commun de Placement d'Entreprise* – FCPE) (PEG) entirely invested in the Company's shares, a range of multi-company FCPE funds offering the choice of investment in different asset classes (equities, bonds, money market), and structured funds offering capital guarantees.

Performance shares

These measures, set up in 2006, complement the deferred compensation packages described previously.

Performance share award schemes are compensation and retention tools for the benefit of employees with responsibilities whose exercise influences the Group's results, as well as employees whose performance, or participation in a project, has been outstanding.

Each year, 800 people, or about 6% of the global workforce, receive performance share rights.

Following a vesting period of four years, for the performance share plan decided in 2014, the beneficiaries are granted the Arkema shares definitely, subject to a presence condition and performance conditions.

Further information on these compensation tools may be found in section 3.5 and paragraph 5.2.6, as well as in note 28 of the notes to the consolidated financial statements as at 31 December 2014, in paragraph 4.3.3 of this reference document.

2.5.1.4 RETIREMENT AND WELFARE BENEFITS

In most countries in which the Group is present, employees benefit from a mandatory public scheme covering risks related to death, disability, work incapacity, pension, and health costs.

Additionally to these legal requirements, the various entities of the Group, both in France and abroad, are responsible for putting in place and keeping up to date social security and employee benefit provisions within the constraints of the agreed annual budgets, and in keeping with their needs and local practices. Therefore, over 95% of Group employees receive complementary death and disability cover.

As regards death cover, the aim is to put in place a guarantee representing at least 18 months' salary. Nearly 80% of the global headcount has this level of cover.

As regards retirement pension, the Group's policy is to favour defined contribution schemes rather than defined benefit schemes, and to limit very long term liabilities. Accordingly, the entities

concerned have gradually closed their defined benefit schemes to new entrants, replacing them with defined contribution schemes.

This is the case in the United States, the United Kingdom and Germany where defined benefit schemes have been closed to employees hired between 2002 and 2006 and where defined contribution schemes have been put in place since.

More recently, defined benefit schemes in the United Kingdom have been closed to the acquisition of new rights with effect on 1 August 2013. Employees benefiting from these plans also benefit from existing defined contribution schemes.

For more information, please refer to note 19.3 of the notes to the consolidated financial statements as at 31 December 2014 in paragraph 4.3.3 of this reference document.

2.5.2 TRAINING AND INDIVIDUAL DEVELOPMENT

2.5.2.1 POLICIES IMPLEMENTED FOR TRAINING AND INDIVIDUAL DEVELOPMENT

Professional training concerns every employee, whatever their profession, level of responsibility or age. It is designed to develop or acquire the necessary skills to hold a position, facilitate moves to a new post, and fulfil the Company's expectations in terms of technical expertise or management practice. Accordingly, ARKEMA affirms its commitment to providing every employee with access to training throughout their career.

Within the Group, 95.6% of companies carry out Annual Performance Reviews (APR). The meetings provide an opportunity for discussions between employees and managers to set objectives for the coming year and to review the employee's career path and the training completed during the year. The joint analysis provides a starting point to decide on training for the year to round out the employee's know-how and expertise.

In 2014, the number of training hours (excluding e-learning) recorded in companies at least 50% held by the Group and with more than 30 employees, the case for 93.9% of ARKEMA's workforce, was 457,578 hours, that is, 34 hours of training per employee per year (compared to 307,206 hours, or 23 hours per employee in 2013). The number of permanent employees taking at least one training course during the year (excluding e-learning) was 11,534, that is, 86% of ARKEMA staff (compared to 10,082 in 2013, or 75% of the ARKEMA workforce).

In addition, 4,442 people took e-learning courses, that is, 33% of the staff (3,585 people in 2013, or 26% of the workforce).

2.5.2.2 CAREER MANAGEMENT

Career management is one of the cornerstones in the development of human resources at ARKEMA, as it helps diversify the experience of employees, as part of their career path, and so ensure that they improve their skills on a regular basis, which is essential to the Group's development.

The mission of career management is therefore twofold:

- ensure that the Company has the expertise that it needs to meet its development needs today and in the medium-term; and

- help employees build their careers. The purpose is to enable them to increase their skills and implement their projects, based on the potential and opportunities available in the Group.

Employee career management is provided by career managers organised as follows:

- career management piloted at the Corporate level for management in France and for Level 15 and higher internationally;
- they network with the career managers in each country and at each site for the OETAM (employees, technicians, supervisory management).

There is a single career management policy within the Group, i.e. it is based on the same principles, whatever the employee's status (managerial or non-managerial), country, age or sex. These principles are as follows:

- provide each employee with the resources needed to manage their career and provide assistance necessary at each step;
- implement a proactive internal promotion policy;
- identify and develop the potential to promote accountability and career development;
- promote functional and geographical mobility; and
- enable each person to advance in the Company and enrich their experience and skills while ensuring organisational flexibility.

The Annual Performance Review (APR) described in paragraph 2.5.2.1 of this reference document provides management with an opportunity to consider the advancement wishes of employees. In addition to the APR, meetings with career managers provide an opportunity to review the employee's career path, their expectations and the Group business lines towards which they could progress.

In addition to the objectives to recruit young people and seniors (see paragraph 2.5.1.2 of this reference document), the GPEC (jobs and skills management planning) and intergenerational agreement signed in September 2013 for Group companies in France includes the recognition of experts through skills/business line grids which complement the Hay classification. The agreement also covers specific measures such as knowledge transfer, the retirement advice centre, and 80% part-time work paid at 85% during the 24 months preceding retirement also in place to facilitate the end of seniors' careers.

2.5.2.3 INTERNATIONAL EXPERIENCE

The Group conducts its activities essentially in Europe, North America and Asia. The Company has implemented an international mobility policy. Its goals are to guarantee that the level of expertise required in all locations is met and to enhance the skills of employees by posting them in different environments.

This policy consists of four programmes suited to the different international mobility objectives.

Expertise

Applicable to Group employees who develop strategic projects for the Group in a foreign country that does not have the required skills locally and which actively participates in skills transfers to local employees.

Development

Applicable to Group employees who develop their careers for a specific period of time (on average three years) by taking on a job in their area of expertise in another country where there is similar local expertise in order to round out their knowledge, then return to the original country with their newly acquired experience.

International

Applicable to ARKEMA employees whose career is exclusively international with no further reference to the country of origin.

Expatriation in Europe

Applicable to French employees of the Group who develop strategic projects or develop their careers in another European country.

2.5.2.4 SPECIAL CAREER TRAINING PROGRAMMES FOR EMPLOYEES

ARKEMA's training policy aims to boost its employees' skills in safety, health, the Group's professions and activities, and management.

To fulfil this ambition, new Group-wide programs are constantly being developed or updated, and various initiatives are implemented. These programs and actions relate in particular

to knowledge of the Group and induction into the Group, taking up a managerial post, and raising management knowledge and skills, the prevention of stress at work, and the development of new professional skills in changing environments.

In terms of safety, ARKEMA is currently developing an international training programme: Arkema Safety Academy. The programme is intended for all Group employees. Its objective is to help share safety issues and challenges, policy and tools at Group level. In 2014, programme development focused on:

- a "Facteur Humain et Organisationnel de la Sécurité" (human and organisational factors of safety) module for a management audience: This programme specifically focuses on the components of safety culture and enables the management of a site to work on the vision and implementation of the safety culture. The module involved 80% of the executive committees of Arkema France industrial sites and research centres in 2014, and the programme will gradually be rolled out throughout Europe in 2015. It will then be rolled out to the United States and Asia in 2016;
- a "safety culture" module intended for all Group employees, which was completed in 2014: The goal of the programme is to share a single vision of the Group's safety challenges, policy and tools with all Group employees. Its deployment began in 2014 with the Executive Committee, the Business Unit Managers, the Functional Managers and the managers on the major continents. The roll out includes the identification and training of 300 internal facilitators/relays. In early 2015, 192 facilitators/relays were identified and trained and 1,678 employees studied the module. All ARKEMA employees will have completed this module by the end of 2015.

ARKEMA is also designing e-learning modules for international deployment covering our major safety risks and the stakes involved in sustainable development. Several new developments were initiated in this area in 2014:

- the wearing of Individual Protection Equipment;
- the behaviour observation approach;
- the Code of Conduct and Business Ethics;
- the CSR policy;
- the energy policy.

2.5.3 ORGANISATION OF THE WORKING WEEK

2.5.3.1 ORGANISATION OF WORKING HOURS

In every country, the Group implements working hours that comply with legal and professional requirements in this regard.

Employees work full time, and to a lesser extent part time. As an example, within Arkema France, working time amounts to 1,575 hours per year for a full-time employee, while the number of working hours for part-time employees ranges from 50 to 80% of the full-time quota. In the United States, working time amounts to 1,960 hours per year for a full-time employee, while the number of working hours for part-time employees ranges from 50 to 90% of the full-time quota. For the Group overall, part-time employees accounted for 3.7% of the total workforce on 31 December 2014, compared to 3.3% in 2013.

Bearing in mind the specific features of the Group's industrial activities, the organisation of the working week involves, for some employee groups, continuous, discontinuous or semi-continuous work regimes.

In the event of additional workload or particular problems, the Group can, based on local current legislation and on the local job market, resort to fixed-term employment contracts, overtime, subcontracted work, or temporary staff agencies.

2.5.3.2 ABSENTEEISM

The number of hours lost to absenteeism in the Group in 2014 (excluding authorised holidays) was 3.5% of hours worked, compared to 3.4% in 2013. Medical absences accounted for 70.7% of the total number of absence hours, compared to 73.5% in 2013.

2.5.4 DIALOGUE WITH SOCIAL PARTNERS

ARKEMA is committed to developing listening to and consultation with its employees, either directly in the form of internal surveys or via personnel representatives. In countries where the law does not provide for personnel representation, specific bodies can be set up locally. An exchange and dialogue structure has been implemented at the European level with the European Group Committee.

2.5.4.1 ORGANISATION OF DIALOGUE WITH SOCIAL PARTNERS

As part of its labour relations policy, the Group is developing an ongoing dialogue with employee representatives, across all Group entities, in accordance with cultural specifics and local laws and regulations.

The Group Human Resources policy note is accessible on the intranet. It explains the principles for implementing dialogue with social partners, which is in full compliance with the provisions of the Code of Conduct and Business Ethics.

The social dialogue body at the European level is the European Group Committee, which consists of 23 members. It holds a one-day plenary meeting once a year to discuss issues within its remit, in particular:

- from an economic standpoint: Changes in the markets, the commercial situation, the activity level, the main strategic sectors, development prospects and goals;
- from a finance standpoint: Review of the Group's consolidated financial statements, annual report and investments;
- from a social standpoint: The Group's social policy and the status and changes in employment;
- from an environmental standpoint: The Group's policy and changes in European regulations; and,

- from an organisational standpoint: Significant changes concerning Group organisation, changes in its activities, the creation or termination of activities affecting at least two European Union countries.

The 2014 plenary session was held on 1 October at ARKEMA's head office.

The European Group Committee's liaison office, consisting of eleven members appointed among employee representatives within this committee, meets with management for updates on the Company's progress. A liaison office meeting was held on 19 March 2014.

In the United States, employees of union sites are covered by collective agreements negotiated with local and central trade unions. With an average three-year term, these agreements cover in particular compensation, the safety of people and processes, and the quality of life at work.

In the People's Republic of China, the first "Employee Representatives Congress" (ERC) of Arkema China Investment, ARKEMA's main structure in China, was elected on 20 December 2007 and put in place in January 2008. This body comprises at present 34 members who elected among them the four members of the "Presidium". The prerogatives of ERC are many, ranging from pay negotiations to safety and to training. This body complements the "Labour Unions" already in place at ARKEMA's industrial facilities in China.

Employee relations in relation to the Group's development

The Group's action is consistent with a structured permanent consultation approach with the personnel representative bodies, in order to accommodate changes in the Group.

In particular, the various reorganisation projects decided and implemented within the Group involve in-depth discussions with the personnel representative bodies as part of information and consultation procedures, both centrally and locally. Much attention is paid to the treatment of the social consequences of these changes. The social support measures implemented during restructuring are focused on enabling internal and external redeployment of employees whose position has been eliminated under the best possible conditions and in line with national regulatory provisions.

The Chauny (France) site shutdown in 2014 resulted in the elimination of 71 jobs. An Employment Preservation Plan with a number of different measures was implemented to ensure internal redeployment (functional and/or geographical) and external mobility (search for an external position, company takeover or creation). The material and financial resources implemented were intended to enable each employee affected by job loss to find a solution suited to their personal situation. An employment mobility unit assisted by a specialised redeployment agency selected with management and the trade unions was implemented to assist employees seeking new positions.

As at 31 December 2014, solutions had been found for 97% of the employees in question, of which more than 50% were redeployed within the Group in France.

A consultation process with the employee representatives of the Stallingborough facility (United Kingdom) was initiated on 28 April 2014 regarding the plan to shut down the site's Coating Resins workshop, leading to the elimination of 58 jobs. The negotiation phase was completed on 20 June 2014 with a consensus on the conditions for employee departures which included, in particular, a voluntary system, an individual training budget and redeployment assistance services.

As at 31 December 2014, 94% of the employees affected by the elimination of their job had found a redeployment solution or were able to take early retirement.

On 9 September 2014, ARKEMA presented a plan to close its site in Zaramillo (Spain) to the plant's representative bodies. The plan was initiated as part of a project to improve the profitability of fluorinated gases and would result in the elimination of 59 jobs. In addition, the transfer of Arkema Quimica, SA central services to the Arkema Coating Resins site at Sant Celoni was announced and would result in the Madrid offices being closed.

Negotiations were led with the local works council for several months to review the plan's economic data and the assistance measures to be implemented.

2.5.4.2 OVERVIEW OF WORKFORCE REPRESENTATION IN 2014

Percentage of Group employees, by geographical area, benefiting from personnel representation and/or trade union representation

	2014
France	100%
Rest of Europe	98.07%
North America	98.22%
Asia	73.39%
Rest of the world	49.73%
ARKEMA TOTAL	94.19%

2.5.4.3 COLLECTIVE AGREEMENTS SIGNED IN 2014

Since ARKEMA's creation, the contractual policy developed within the Group has been implemented via the signature of several agreements.

In France, some agreements are signed at the Group level and are, therefore, applicable to all Group companies in France. They are completed by company and establishment agreements negotiated within the entities.

Outside France, collective bargaining within Arkema and its affiliates is carried out based on the national practices applicable to staff representation, and relations with management and trade unions.

The main topics for negotiation relate to overall compensation (salaries, provident schemes, health coverage, employee savings

and other company benefits), job and skills management, quality of life at work, safety and health at work and dialogue with social partners.

The main agreements signed in France in 2014 were the following:

- Arkema France:
 - agreement on Arkema France profit-sharing for the 2014, 2015 and 2016 financial years, signed on 17 April 2014,
 - agreement on the renewal of the Plan on the Dispensation from Work for Shift Workers signed on 22 April 2014,
 - agreement on measures taken for the employment and integration of disabled people, renewal agreement signed on 2 July 2014,

- agreement on the allocation of seats in the Central Workers Council signed on 4 September 2014,
- agreement on the Central Workers Council signed on 8 September 2014,
- framework agreement on the principles for implementing teleworking signed on 26 November 2014,
- agreement on compulsory annual collective bargaining signed on 15 December 2014;
- Coatex:
 - packaging sector agreement on 1 March 2014,
 - manufacturing agreement on 24 June 2014,
 - agreement on representative elections on 17 November 2014;
- CECA:
 - agreement on CECA profit-sharing for the 2014, 2015 and 2016 financial years signed on 21 May 2014,
 - agreement on compensation for number of days worked signed on 31 October 2014,
 - agreement on the renewal of the Plan on the Dispensation from Work for Shift Workers signed on 25 July 2014;
- Altuglas International:
 - profit-sharing agreement on 2 April 2014,
 - agreement on compulsory annual collective bargaining signed on 19 December 2014;

- MLPC International:
 - agreement on representative elections on 29 January 2014,
 - profit-sharing agreement on 13 June 2014,
 - agreement on gradual work dispensation for shift workers on 1 July 2014.

Outside France, the employee relations policy within the Group and its affiliates is carried out based on local practices applicable to staff representation and employee/management relations:

- in Germany: the agreements reached with the Central Works Council and the Works Councils of the various Arkema GmbH sites covered, in particular, compensation, safety, health at work, and work time;
- in Italy: Arkema Srl signed a total of twelve collective agreements in 2014, in particular, on compensation, working conditions and training. CECA Srl signed an agreement regarding the move of employees from Pioltello (CECA site) to Rho (Arkema site);
- in Korea: Arkema Korea signed two agreements on compensation and employee working conditions;
- in the Netherlands: ARKEMA BV and ARKEMA Rotterdam BV both signed company agreements on personnel representation and pension schemes;
- in the United States: ARKEMA Inc. signed two agreements. They covered compensation, working hours and working conditions, retirement and disabilities.

2.5.5 HEALTH AT WORK

2.5.5.1 HEALTH AT WORK CONDITIONS: AGREEMENTS AND ACTIONS

In matters of protecting health at work, ARKEMA has undertaken continuous progress actions for the prevention of harsh working conditions, stress, and risks at the workstation.

Agreements and actions initiated to prevent harsh working conditions

In January 2012 Arkema France concluded an agreement on the prevention of harsh working conditions. This agreement marks ARKEMA's resolve to engage in an initiative for the continuous and measured improvement of working environments. It is valid for three years from 1 February 2012.

The key points of the agreement are as follows:

- the setting of internal harsh working conditions thresholds;
- a diagnosis of harsh working situations across all ARKEMA France sites;
- the implementation of concrete measures to adapt workstations and develop skills and qualifications;

- the development of internal expertise and qualifications in the field of ergonomics. In this respect, training - ergonomics/work analysis actions - were deployed throughout all sites in France to increase employee expertise in this area. Benchmarks were established for each site;
- efforts to raise awareness of sleep issues for shift operators;
- actions to improve working conditions; and
- preliminary work in the design phase of new plants.

Additionally, other agreements and action plans on the prevention of harsh working conditions signed by the French subsidiaries Sunclear (16 December 2011), Altuglas International (16 January 2012), Coatex (31 January 2012) and CECA (22 June 2012) embody in practice this desire to roll out the initiative across all Group companies in France.

Following the signature of these agreements, many actions were taken both locally and cross-company. In 2014, they included:

- studies in the field related to shift work. ARKEMA shift organisation guidelines were established to create an action plan. An awareness-raising module for operators and plant supervisors was designed and is currently being deployed;
- the technical department has been involved in work to integrate ergonomics upstream of facilities design. This work has led to the design of a library of work situations. The work will continue in 2015 and will result in the definition of guidelines for working conditions that will be taken into account when building new facilities (workshops, plants and R&D centres).
- creation of a work group at head office to study the synergies between the Accident Prevention through Observation (PAO) and Prevention of harsh working conditions approaches;
- a shared assessment with management and trade unions on the concrete actions taken in the field with respect to workstation set up, the development of maintenance aids and adjustments to work organisation and working conditions;
- awareness-raising about people who travel extensively and their health via the creation of a module and information brochure.

Agreements and actions initiated for stress prevention

Arkema France launched a voluntary individual and medical prevention initiative for stress at work in 2008. It is based on a diagnosis of employee stress levels established at a medical check-up (OMSAD). In 2009, ARKEMA also launched a voluntary group prevention initiative for stress at work designed to take action on the work environment when it is identified as an "at-risk area" based on relevant indicators such as an overly elevated rate of "excess-stress".

This collective stress prevention approach was included in an agreement with Arkema France signed by four out of five unions in May 2010. Through the agreement, Arkema reaffirmed its goal of providing all of its employees with a working environment that promotes well-being at work.

This agreement covers collective preventive actions (such as training, communication and support to people) and the introduction of a procedure for identifying risk areas, analysing them with a view to identifying stress factors, and putting in place corrective actions.

The following have been implemented over the past four years:

- a large number of training courses were organised on the prevention of stress at work, intended for occupational health services, managers, human resources managers, and HSE managers. Training on preventing burnout was provided to managers and site directors in 2014. The training was then

rolled out to the central observatory for the prevention of stress at work, two local observatories (head office and Cetia) and to site managers at Cetia. In all, 600 people were trained;

- in addition, communication initiatives continue on a regular basis. An awareness-raising week on the use of Information and Communication Technologies (ITC) was also held in 2014. It covered the following topics in particular: The use of email, the impact of social networks on the organisation and on management methods, changes in work due to ITC;
- a new mapping of Omsad (*Observatoire français médical du stress, de l'anxiété et de la dépression*) results will be carried out in early 2015;
- the risk areas identified were analysed locally to highlight the stress risk factors present. Once they were identified, *ad hoc* action plans were deployed locally.

Actions for health protection at the work station

In order to consolidate its health actions at the workstation level, ARKEMA is developing a health-safety risk assessment tool for workstations called the STARMAP project. It is the successor to the Franco-American MRT (Management of Risks and Tasks) tool. It will promote risk prevention worldwide through the sharing of data and best practices.

Agreements on early employee retirement from sites with asbestos

In France, five operating sites belonging to the Group were included by ministerial decree on a list of sites qualifying for early retirement provisions for asbestos workers available to people still in employment. The Group cannot exclude the possibility that other sites may be added to this list in future.

Accordingly, on 30 June 2003 Arkema France concluded with all trade unions an agreement aimed at improving the retirement terms of its employees as part of these measures, and at accommodating the retirement date for those employees concerned in order to facilitate the transfer of skills and know-how within the Group. These measures were extended to all Group companies in France by a Group agreement concluded on 1 September 2007 with all trade unions. For more information, please refer to note 20 of the notes to the consolidated financial statements as at 31 December 2014 in paragraph 4.3.3 of this reference document.

2.5.5.2 MEDICAL CARE

Medical check-ups were available in 95.5% of the Group's companies in 2014, representing 83% of the Group's employees.

2.5.5.3 OCCUPATIONAL ILLNESSES

In manufacturing its products, ARKEMA uses and has in the past used toxic or hazardous substances. Despite the safety and monitoring procedures that have been instituted at Group level and for each production site, Group employees may have been exposed to such substances and may develop specific pathologies as a result of such exposure.

In this respect, like most industrial companies, in the past, the Group has used a variety of insulating or heat-proofing materials containing asbestos in its production facilities. Consequently, certain employees may have been exposed to such materials before these were gradually phased out and replaced with substitute products by the Group.

Claims for occupational illness related to past asbestos exposure have been filed against the Group, mostly for periods before 1980. Risks related to occupational illness are described in paragraph 1.7.2 of this reference document.

As regards industrial hygiene, in addition to the introduction of enclosed industrial processes limiting emissions as much as possible, collective protective measures such as source capture of residual emissions, general improvement work designed

to minimise exposure risks, and personal protective measures adapted to each task, the Group requires the implementation of assessments of exposure risks at the workstation, and ensures the use of regular metrology for residual exposure to hazardous chemical products for its employees. The aim of these measures is to prevent future risks of occupational pathologies where possible. Metrological data are kept in conditions that will guarantee their long-term integrity.

In 2014, 33 occupational illnesses were reported at the Group level, of which 23 were related to exposure to asbestos and none to exposure to chemical products.

In France, the Group is also developing a policy of traceability of potential exposure to factors of harsh working conditions identified on its sites, including chemical risks, as part of its single risk assessment document, in accordance with French regulations. The Group has been working since 2012 at the computerisation of these data, while including the requirements of the 2010 and 2014 legal texts on harsh working conditions. The STARMAP tool (see paragraph 2.5.5.1) will manage internal traceability and track harsh working conditions perfectly consistent with the Group's international dimension.

2.5.6 DIVERSITY AND EQUAL OPPORTUNITIES, EQUAL TREATMENT

Equal opportunities represent, with the prevention of discrimination in general, a strong vector of ARKEMA's human resources policy. The Group therefore takes steps in particular to ensure gender equality, promote the inclusion of disabled employees, and observe the principle of non discrimination as regards age and nationality.

The various measures put in place to ensure equal opportunities and obtain measurable results include:

- a programme of periodical review of job descriptions to ensure that they accurately reflect the related duties and responsibilities, as well as an annual review of the posts, their titles and the profiles required, department by department, in order to safeguard equality and consistency within the professions; and
- a recruitment policy based on the single criterion of relevance of the profile with the position. In the United States for example, Arkema Inc. provides training to the people involved in the recruitment process, provides them with the descriptions of the posts and the profiles required, and remedies any situation showing a lack of employment of minorities or women within the company's sites.

2.5.6.1 MEASURES TAKEN TO PROMOTE GENDER EQUALITY

The Group has developed over recent years a policy of gender equality and equal pay.

The actions identified concern the following four areas:

- strengthening the principle of non-discrimination in access to employment;
- ensuring that the principle of equal pay is implemented;
- promoting and facilitating career development; and
- promoting parenting within the Company.

An agreement on equality at work was signed for Arkema France. Through the roll-out of this agreement, the agreements mentioned previously are also followed up through an analysis of the main indicators. A recruitment charter restating our commitment to non discrimination was also drawn up and distributed.

Arkema France also signed in April 2013 a Corporate Parenting Charter, thereby implementing its commitment to the issue of gender equality within the Group.

A guide will in fact be drafted for managers to provide them with the necessary information on interviews to be conducted as part of gender equality in the workplace.

ARKEMA ensures that female employees enjoy the same career development opportunities as their male counterparts. At Arkema France, of nine promotions to management positions in 2014, two, that is, 22% (compared to 33.3% in 2013), involved women. On 31 December 2014, women accounted for 22.1% of the permanent, non-management salaried workforce (21.8% in 2013) and 24.07% of all employees (compared to 25.2% in 2013).

In the United States, Arkema Inc. created an Affirmative Action Plan supporting gender and pay equality between all employees and job applicants, given similar qualifications and regardless of race, ethnicity, country of origin, religion or sex. The Affirmative Action Plan is updated annually for the period of 1 June through to 31 May.

Group-wide, in 2014, women held 17% of level 15 management positions and higher, according to the Hay classification, compared to 19% in 2013. However, this change is not significant over a year, as the time needed to acquire the skills required for this type of position can take several years of focused experience.

2.5.6.2 MEASURES TAKEN TO PROMOTE THE EMPLOYMENT AND INCLUSION OF PERSONS WITH DISABILITIES

Management and the trade unions at Arkema France signed an initial company agreement on 9 June 2008 in support of maintaining disabled people in employment or helping them find employment covering 2008-2009-2010. The agreement was renewed unanimously on 16 June 2011 by the unions and approved on 8 July 2011 by DIRECCTE Hauts-de-Seine (*Direction régionale des entreprises, de la concurrence, de la consommation, du travail et de l'emploi*). The agreement renewal was for 2011 through 2013.

Assessment of the two first agreements (2008 to 2013)

The first agreement resulted in the implementation of an operational organisation in February 2009, with the creation of Mission Handicap within the DRHCI (Department of Human Resources and Internal Communication) and trained local Coordinators and/or Disability Officers at each Arkema France site. This accelerated implementation of the process.

A significant amount of work was done to build a network of specialised partners involved in training and recruiting, workstation ergonomics and subcontracting. The work led to the creation and regular updating of a directory distributed to the local Coordinators and to the DABS (Goods and Services Purchasing Department).

The commitment of local Coordinators, with support from the CSP (*Centre de Services Partagés*) Recruiting and Mission Handicap, helped to achieve all of the commitments made in the first agreement in terms of hiring and meet or exceed many of the objectives of the second one.

The overall employment rate, which was to be maintained at 3.13% for the first agreement, reached 4.18%, for a goal of 4.10%, by the end of the second agreement.

- 19 permanent contract hires were completed over the 2011-2013 period. The objective was 18;
- 18 work-study contracts were signed out of a planned 20. The goal of 20 couldn't be reached because it wasn't possible to find candidates that were medically apt to meet the training requirements of the sites, notably, with respect to manufacturing operator training;
- 42 interns were hosted out of a projected 40 to 45;
- 7.18 full-time equivalent fixed-term contracts (FTE) and 15.63 FTE temporary workers were employed out of a planned 20 FTE for 2011-2013.

In addition, 74 actions to maintain employment, train and provide career development were completed. Eight facility accessibility projects were also initiated independently of the agreement budget.

Development of relations with the protected sector also continued: While the goal was to invoice €283,125 by the end of the agreement, that is, growth of 12% in the number of labour hours invoiced compared to the average recorded for the 2008-2010 period, €365,163 were spent in 2013.

A new agreement for the 2014-2016 period

An overall assessment of the agreement ending on 31 December 2013 was presented to management and the unions on 17 April 2014. Executive management, management and the unions agreed to continue the policy and a new agreement was signed with unanimous support on 2 July 2014. The agreement was approved by DIRECCTE Hauts-de-Seine on 16 October 2014.

The new agreement covers 2014, 2015 and 2016. It confirms the commitments made by the Company to:

- maintain disabled people in employment and guarantee them access to training and career development;
- conduct an open recruitment and integration policy;
- host young people in training;

- develop partnerships with the protected sector; and
- raise awareness within the Company.

It includes new hiring objectives:

- achieve an overall employment rate of 4.45%;
- hire at least 16 people under permanent contracts;
- train at least 16 people in a work-study programme;
- bring in 14 people on full-time equivalent permanent contracts or temporary assignments;
- sign 40 trainee agreements;
- increase the total labour cost of subcontractor contracts by 5% excluding taxes, compared to the average amount over 2011-2013.

The new agreement achieved the following by the end of 2014:

- 5 disabled persons were hired under permanent contracts since 1 January 2014;
- 6 fixed-term contracts were signed;
- 10 temporary work assignments were completed;
- 13 work-study contracts were signed, including 12 professional training contracts and one apprenticeship contract;
- 5 interns were hosted.

In addition, a number of different actions to maintain employment, train and provide career development were completed in 2014. These include the continuation or start-up of ergonomics studies (Lannemezan, Carling), corresponding changes to workstations and funding assistance for personal equipment: Hearing prostheses (Saint-Auban, head office) and occupational training actions for employee redeployment (GRL). 2014 marked the end of a programme to provide an employee with psychological assistance after their return to work after a long absence (head office). It began two years ago and led to the redeployment of the employee in a position suited to the constraints of their disability.

Continuing the deployment of a network of disability officers at the facilities, the Jarrie site held a training session for 12 disability officers and Pierre-Bénite trained two additional disability officers. Nearly 50 disability officers have been trained to date.

The implementation of suitable training programmes

Employability through specialised training is one of the leading commitments of the ARKEMA policy to promote persons with disabilities. Both executive management and management and the unions support this fully: the first qualifying "Opérateur de Fabrication des Industries Chimiques" (chemical industry production operator) training session, designed in 2012 in

partnership with the INTERFORA training organisation and other industry companies ended in 2014. Nine people with a disability on a work-study programme took the course via a professional training contract, including three at Pierre-Bénite and Jarrie. All received their CQP (professional qualification certificate). A new class began in April 2014 following a period of *Préparation Opérationnelle à l'Emploi* (preparation for employment). Of the original eight people on work-study, seven are now continuing their apprenticeship. Three are at Arkema France sites (one at Pierre-Bénite and two at Jarrie). As a result of the experience gained in the first session, the tutors and INTERFORA education team were provided with a special training day in preparation for the new class. They also received support throughout their training from a company specialised in dealing with disabilities. The entire programme is financed via a three-way agreement between INTERFORA, ARKEMA and Solvay, which wanted to become involved.

2.5.6.3 ANTI-DISCRIMINATION POLICY

The action plan to employ seniors, which took effect on 1 January 2010 for a period of three years, ended on 31 December 2012. It resulted in the recruitment of 697 employees under permanent contracts, 54 of which were over 50, i.e. 7.74%.

In 2013, the issue of senior employment was included in the jobs and skills planning and intergenerational management agreement with the Group's companies. The agreement was signed on 12 September 2013 by the CFDT and CFE-CGC unions (see paragraph 2.5.2.2 of this reference document).

People 50 and older are considered to be seniors for the purposes of this agreement. ARKEMA committed to the following actions in the agreement:

- a hiring objective: 10% of permanent contract recruiting must be of people 50 and older;
- keeping people employed;
- end-of-career assistance;
- retirement planning;
- knowledge sharing.

In 2014, there were 376 permanent contract hires in the Group in France, 42 of which were people 50 or older, i.e. 11% of all recruiting (compared to 13.5% in 2013).

Taking into account legislative changes in France covering retirement and keeping seniors employed resulted in a modification to corresponding employee-related liabilities as described in note 19 of the notes to the consolidated financial statements as at 31 December 2014 in paragraph 4.3.3 of this reference document.

2.5.7 PROMOTION AND COMPLIANCE WITH THE PROVISIONS OF THE CORE CONVENTIONS OF THE WORLD LABOUR ORGANISATION

Generally speaking, ARKEMA scrupulously complies with the constitutional texts, treaties, conventions, laws and regulations in force in the countries or territories in which the Group conducts its business.

Accordingly, ARKEMA confirms its adherence to:

- the principles of the Universal Declaration and of the European Convention on Human Rights;
- the fundamental conventions of the International Labour Organisation; and
- the guiding principles of the OECD for multinational companies.

Through its official participation in the United Nations Global Compact, ARKEMA supports the ten principles, particularly those related to respect for human rights and international labour standards.

To confirm this adherence, ARKEMA has put in place an ARKEMA Code of Conduct and Business Ethics which sets out the requirements imposed on the Group wherever it operates, vis-à-vis its shareholders, customers, employees and any other stakeholders. It also lays down the individual behaviour principles and rules which employees are required to observe within the Group.

As indicated in paragraph 2.4.3 of this reference document, ARKEMA has implemented a number of different actions to raise the awareness of, and train, its employees to ensure that they comply with the rules and principles of the Code and, notably, that they respect the right to freedom of association and expression, and human rights, that they oppose all forms of forced labour and child labour and that they reject all forms of discrimination.

2.5.7.1 RESPECT FOR FREEDOM OF ASSOCIATION AND THE RIGHT TO COLLECTIVE BARGAINING

ARKEMA is committed to respecting the fundamental freedoms of its employees, such as the freedom of association and expression, of protecting the personal data of its employees and of respecting their privacy, as defined in the Code of Conduct and Business Ethics.

Among the fundamental principles and rights at work, the right to freedom of association and to collective bargaining is a factor of social progress which ARKEMA encourages to put in place wherever the Group operates.

Accordingly, over and above compliance with legal and regulatory provisions in the countries in which it conducts its business, ARKEMA facilitates and promotes the creation of employee representation in order to put in place a suitable collective bargaining process.

The organisation of dialogue with social partners and a review of the collective agreements within the Group are given in paragraph 2.5.4 of this reference document.

2.5.7.2 ELIMINATION OF EMPLOYMENT AND CAREER DISCRIMINATION

As part of its policy of non-discrimination and promotion of gender equality and diversity, ARKEMA is committed to promoting the banning of discrimination of all kind.

ARKEMA is committed to promoting diversity, which is an asset for its global business, and to recruiting employees solely based on its needs and their qualifications, as defined in its Code of Conduct and Business Ethics.

The policy of diversity, equal opportunities and equal treatment of employees within the Group is covered in paragraph 2.5.6 of this reference document.

2.5.7.3 ELIMINATION OF FORCED OR COMPULSORY LABOUR, ABOLITION OF CHILD LABOUR

ARKEMA fully supports the elimination of forced labour and opposes any type of labour which involves forcing people to work against their will or in violation of their personal freedom, as defined in the Code of Conduct and Business Ethics.

ARKEMA commits to never using child labour under any circumstances, regardless of the country ARKEMA is operating in, as defined in its Code of Conduct and Business Ethics.

2.6 METHODOLOGY NOTE

2.6.1 METHODOLOGY NOTE ON ENVIRONMENTAL AND SAFETY INDICATORS

2.6.1.1 ENVIRONMENTAL REPORTING TOOLS AND SCOPE

Extensive data

The Group's extensive quantitative environmental data are compiled by its environmental reporting system, REED (Reporting of Environmental and Energy Data), accessible globally via the web platform of a service provider.

The values of extensive indicators, once published after verification by the Independent Third-party Body, are not amended in the REED system. Any subsequent retroactive modification due to a change in the estimation method or to a correction is the subject of a commentary in the text of section 2.2 of this reference document.

The data are input by the HSE (Health Safety Environment) departments of the Group's sites, and validated on two levels – geographical then Group.

The consolidation scope for environmental reporting covers all Group sites for which operations (and emissions) permits were in the name of ARKEMA or a majority-held subsidiary on 31 December 2014.

The activities sold or terminated in 2014 are not included in the 2014 reporting, but are still in the reports of previous years.

The entire 2014 production of businesses acquired during 2014 is included in the 2014 report.

Activities started in 2014 are reported from their start-up date.

Intensive data (EFPI)

In order to oversee its environmental performance more accurately and provide a Group consolidated data report that better describes the evolution of this performance, ARKEMA has adopted a methodology allowing its plants to report intensive indicators, called EFPIs (Environmental Footprint Performance Indicators). This methodology for computing intensities of emissions or consumptions of resources relative to production volumes, compared with a baseline year, as used by the Group, minimises the impact of any changes to its business base and the productions from its plants, as well as any changes to the method used to estimate or calculate environmental footprint variables.

The Group's intensive quantitative environmental data are compiled by the same REED environmental reporting system, accessible globally via the web platform of a service provider.

EFPI data are input by the HSE (Health Safety Environment) departments of the Group's sites, and validated on two levels – industrial director then Group. They are subject to a large number of consistency tests.

The consolidation scope for EFPI reporting covers Group sites for which operations (and emissions) permits were in the name of ARKEMA or a majority-held subsidiary on 31 December 2014 and which are among the sites making the greatest contribution to the Group. All emissions or consumptions at these sites account for at least 80% of the Group's in year Y-1.

The activities sold or terminated in 2014 are not included in the EFPI 2014 reporting, but are still in the EFPI reports of previous years.

Businesses acquired during 2014 will be included in the EFPI 2017 reporting for the entire 2017 year as compared with the 2016 performance.

The Hengshui site (China) of Hebei Casda Biomaterials Co. Ltd. and the Zhangjiagang site (China) of Suzhou Hipro Polymers Co. Ltd. acquired in 2012 will only be included in the EFPI reporting from the 2015 EFPI onwards as compared with the 2014 performance.

Activities started up in the course of 2013 will be included in the 2015 EFPI reporting as compared with the 2014 performance.

The American sites which began reporting their emissions to water expressed as chemical oxygen demand (COD) in 2013 will only be included in the EFPI COD reporting from 2014 or 2015 as compared with the previous year's performance as soon as their emissions estimates are deemed reliable.

The EFPI calculation methodology allows the inclusion of new reporting sites within ARKEMA's previous performance. Should the inclusion of a large number of new sites result in a significant change to the confidence interval in this calculation of ARKEMA's EFPI, consideration will be given to whether an adjustment factor should be applied or whether the use of a new baseline year is proving necessary.

2.6.1.2 SAFETY REPORTING TOOLS AND SCOPE

Quantitative data concerning safety:

- are recorded in the Safety Log application accessible on the Group's intranet;
- are entered by the sites and validated by the head office;

- cover all industrial sites operated by ARKEMA or by its majority-held subsidiaries, head offices and research and development centres; and
- did not include vinyl-producing sites sold in 2012 in the 2012 data.

2.6.1.3 CHOICE OF INDICATORS, MEASUREMENT METHODS AND USER INFORMATION

The Group has defined these indicators in order to monitor various emissions and consumptions that are relevant to its activities and in accordance with French law on *Nouvelles Régulations Économiques* (NRE) and its decree of 20 February 2002.

These indicators were set out at the Group's creation, and have been followed up since the 2006 reporting year.

They also comply with the regulatory requirements of article 225-I of the French "Grenelle II" law n° 2010-788 published on 12 July 2010 and its implementing decree dated 24 April 2012.

Environmental reporting is covered by an "Environmental Reporting" directive, an "EFPI Reporting" directive, and an "Energy Reporting" directive, issued by the Group Safety Environment (DSEG), Sustainable Development (DDD), and Energy Purchasing (DAMPE) divisions, and accessible to all personnel on the ARKEMA intranet.

The computation and estimation methods used may evolve, for example because of changes to national or international regulations, for the sake of consistency between geographical regions, or in the event of problems in their application.

The directives may then be adapted into guides which are accompanied by training sessions per geographical region, where required.

Safety reporting is the subject of a "Monthly Safety Reporting" directive issued by DSEG and accessible to all personnel via the ARKEMA intranet.

2.6.1.4 ADDITIONAL INFORMATION ABOUT ENVIRONMENTAL AND SAFETY INDICATORS

The following information is provided by way of clarification of the definition of the indicators applied by the Group.

Total substances contributing to acidification

This indicator is calculated using SO_x and NO_x emissions converted into equivalent tonnes of SO₂.

Volatile Organic Compounds (VOCs)

The list of products regarded as VOCs may vary from country to country, and 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 (IED).

Emissions from American sites are therefore obtained by adding to the national reported data products such as fluorinated organic compounds.

Chemical Oxygen Demand (COD)

COD emissions reported are those emitted into the natural environment.

In cases where water from a Group facility is treated in an external treatment plant, the reported data takes account of the effectiveness of treatment by the external treatment plant.

In cases where a Group site takes in external COD-laden water, ARKEMA's reported data concerns the COD load effectively introduced by ARKEMA (outgoing minus incoming).

Waste

Segregation of hazardous waste and non-hazardous waste may vary from one geographical region to another. The definitions used by the Group are those of the Basel Convention on the control of transboundary movements of hazardous waste and their disposal.

By-products that are recycled without processing at an ARKEMA site by being sold to third parties are not included in the computation of waste.

Water consumption

All sources of water are included in the reported data, namely groundwater/well, river, sea, public or private networks, drinking water, excluding rainwater collected in separate networks.

Energy consumption

Reported consumption corresponds to net purchasing of energy.

Autoproduction corresponding to the energy produced by exothermic chemical reactions which do not amount to withdrawal from the planet's energy resource is not included.

Sales of energy are deducted from purchases of energy. This is for example the case with the sites fitted with steam and electricity cogeneration from purchased gas (reported) which sell electricity back (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 emissions (GHG)

Direct declared emissions of GHG gases covered in the Kyoto Protocol

Their impact is calculated in equivalent tonnes of CO₂.

In this reporting, 2012 emissions have been computed using the Global Warming Potential values published in 2007 by the IPCC (Intergovernmental Panel on Climate Change).

For intensive data, the GHGs of fluorogases not listed in the Kyoto Protocol but listed in the Montreal Protocol are included in the EFPI computation.

Indirect greenhouse gas emissions (GHG)

In this report, indirect scope 2 CO₂ emissions were calculated using the electricity and steam consumption and emissions coefficient in tonnes per KWh or tonnes of steam provided by the suppliers of ARKEMA sites, or using the amounts provided by local authorities such as the EPA-2012 database in the United States, the 2013 Baseline Emission Factors for Regional Power Grids from the China NDRC (National Development & Reform Council) for China, SERMANAT data (Mexico's Federal Environmental Agency) for Mexico and data from ADEME (*Agence française de l'environnement et de la maîtrise de l'énergie*), which publishes information for several countries.

In this report, indirect emissions of scope 3 CO₂ were estimated using internal Group company logistics data, accounting for 99% of Group shipments. It should be noted that the kilometres travelled for transport per customer are only available for 54% of scope 3 emissions. Average mileage per zone was used in the other instances.

This data, consisting of tonnes transported, number of shipments, weight transported per shipment and average mileage for each type of transport, were then converted to tonnes of CO₂ emitted during the transports using coefficients per mode of transport defined in the "Guidelines for Measuring and Managing CO₂ Emissions from Freight Transport Operations" published by the European Chemical Transport Association (ECTA) and the European Chemical Industry Council (CEFIC) in March 2011 and prepared based on the work of Professor Alan McKinnon of Heriot-Watt University in Edinburgh in the United Kingdom.

Accidents

Total recordable injury rates (TRIR) and lost-time injury rates (LTIR) are computed for all of the Group's own personnel as well as for subcontracted personnel working on ARKEMA sites on the basis of standard USA 29 CFR 1904.

2.6.2 METHODOLOGY NOTE ON SOCIAL AND SOCIETAL INFORMATION/INDICATORS

2.6.2.1 SCOPE AND REPORTING TOOLS

The Group's quantitative social data are from several different reporting processes.

Data concerning headcount:

- are recorded in the AREA 1 application accessible on the Group's intranet;
- are entered by the Human Resources directors (DRH) or the managers of Group companies (depending on their size);
- are validated at the Arkema, Altuglas International, CECA, Coatex and Sartomer group levels; and
- cover all companies in which the Group has a holding of 50% or more.

The quantitative and qualitative data concerning the other social and societal information:

- are recorded in the AREA 2 application accessible on the Group's intranet;
- are entered by the human resources employees of regional companies and subsidiaries;
- are validated by the regional DRHs or subsidiary managers; and
- cover all companies in which the Group has a 50% holding or more and which have over 30 employees, which accounts for 93.9% of the Group's total headcount.

2.6.2.2 CHOICE OF INDICATORS, DETERMINATION METHODS AND USER INFORMATION

The Group has defined relevant indicators relative to its activities and its social policy.

Indicators concerning the personnel and the safety records were put in place at the time of the Group's creation, and have been followed up since the 2006 reporting year.

Additional social, as well as societal, information and indicators are the subject of new reporting for 2012 via the AREA 2 compilation system. Their use was gradually extended in 2013, in particular with the monitoring of training hours recorded.

This information and these indicators also comply with the regulatory requirements of article 225-I of French law "Grenelle II" n° 2010-788 published on 12 July 2010 and its implementing decree of 24 April 2012.

Social reporting is covered by different procedure documents in the form of AREA 1 and AREA 2 guides, which were distributed to all of the report contributors and validators.

The computation methods may have limitations and may evolve, for example because of national social regulations or practices that vary from one region to another, difficulties in reporting back certain information in some areas, or the availability of certain information based on the countries.

2.6.2.3 DETAILS ON SOCIAL INFORMATION AND INDICATORS

Headcount

Reported headcount includes employees on the Group's payroll (employees present and employees whose employment contract – of whatever nature – has been suspended) at 31 December of the year being reported.

Permanent employees are those benefiting from an employment contract for an indefinite period of time. Outside France, employees engaged on fixed-term contracts exceeding 12 months and renewed more than once are also included among permanent employees.

Categories of personnel

Data are presented by professional category. In France, employees have the executive status (cadre) as defined in the collective agreements governing the companies concerned. Outside France, employees have the executive status (cadre) if their Hay post level is 10 or above.

Recruitment

These data cover the recruitment of employees on permanent contracts (permanent headcount) only.

Compensation

Collective variable components are those variable components that depend on global economic criteria as well as the economic and financial results of the company which the employee reports to. In France, these are incentive bonus and profit-sharing payments.

Social security

Social security cover refers to benefits from a collective or mutual insurance scheme providing coverage for incapacity/disability/death risks.

Training

The training hours counted do not include e-learning.

Absenteeism

The absenteeism rate corresponds to the total number of hours of absence in the year (sickness, accident, maternity, strike, unpaid leave, excluding paid leave) relative to the total number of man-hours in the year.

2.7 INDICATORS

		2014	2013	2012
SAFETY				
Total recordable injury rate (TRIR) ⁽¹⁾		1.9	2.8	3.4
Lost-time injury rate (LTIR) ⁽¹⁾		1.1	1.6	1.9
Quota of AIMS-audited sites ⁽²⁾	%	78	62	37
Quota of sites implementing peer observation	%	77	62	47
Safety, environment and maintenance capital expenditures	€M	211	195	189
Quota of OHSAS 18001-certified sites	%	60	54	34
Quota of OHSAS 18001-certified sites in Europe	%	62		
Quota of OHSAS 18001-certified sites in the Americas	%	63		
Quota of OHSAS 18001-certified in Asia	%	50		
ENVIRONMENT				
Quota of ISO 14001-audited sites ⁽³⁾	%	70	59	55
Quota of ISO 14001-audited sites ⁽³⁾ in Europe	%	68		
Quota of ISO 14001-audited sites ⁽³⁾ in the Americas	%	84		
Quota of ISO 14001-audited sites ⁽³⁾ in Asia	%	50		
Emissions to air				
Substances contributing to acidification	t eq SO ₂	4,750	5,330	5,760
Carbon monoxide	t	3,030	8,850	9,220
Volatile Organic Compounds (VOC) ⁽⁴⁾	t	4,600	4,460	4,420
Dust	t	430	400	460
Emissions to water				
Chemical Oxygen Demand (COD)	t of O ₂	3,870	3,800	3,430
Suspended solids	t	3,030	2,950	2,840
Waste				
Hazardous waste excluding material recovery	kt	149	160	160
including landfill disposal	kt	2.1	2.7	2.4
Hazardous waste recycled into materials	%	16	15	
Hazardous waste utilised for energy recovery	%	46	49	
Non-hazardous waste	kt	219	210	157
Resources				
Water withdrawn	Mm ³	120	130	130
Net purchases of energy	TWh	8.36	8.50	8.50
• In Europe	TWh	4.65		
• In the Americas	TWh	2.78		
• In the rest of the world	TWh	0.93		
Net purchases of energy by type				
• Fuel	TWh	4.52		
• Electricity	TWh	2.44		
• Steam	TWh	1.40		

		2014	2013	2012
Share of net fuel purchases from gas	%	90		
Share of net energy purchases from low-carbon emissions electricity	%	17		
Direct greenhouse gas emissions (GHG) ⁽⁵⁾	kt eq CO ₂	3,430	4,710	5,120
• Of which, CO ₂	kt eq CO ₂	1,380	1,470	1,460
• Of which, HFC	kt eq CO ₂	2,010	3,200	3,610
Direct greenhouse gas emissions (GHG) ⁽⁵⁾ by region				
• In Europe	kt eq CO ₂	1,050		
• In the Americas	kt eq CO ₂	2,040		
• In the rest of the world	kt eq CO ₂	340		
Indirect greenhouse gas emissions (GHG) scope 2 CO ₂	kt	1,067	1,053	
• In Europe	kt	284		
• In the Americas	kt	545		
• In the rest of the world	kt	239		
Indirect greenhouse gas emissions (GHG) scope 3 CO ₂ at more or less 20%	Mt	0.2		
Quota of the volume of products bulk shipped as a share of maritime shipments from Europe	%	26		
Quota of rail and intermodal shipments as a share of land shipments in Europe	%	44		
Average bulk shipment load rate per truck in Europe	t	23		
Quota of truck shipments done by bulk in Europe	%	76		
Quota of air shipments	%	0.07		
Number of energy diagnostics in progress or completed		20		
• In Europe		14		
• In North America		5		
• In Asia		1		
Number of Arkenergy investments		47		
• In Europe		31		
• In North America		12		
• In Asia		4		
Number of ISO 50001-certified sites		5		
Numbers of sites where ISO 50001 certification is in progress		10		
Adaptation to the consequences of climate change				
Number of sites exposed to a severe risk of storms and/or flooding		18		
Share of sales from products obtained in full or in part from renewable raw materials	%	13		
SOCIAL				
Headcount				
Total headcount on 31 December ⁽⁶⁾		14,280	13,908	13,925
• including permanent employees		13,832	13,434	13,349
• including fixed-term employees		448	474	576

		2014	2013	2012
% managerial positions	%	25.1	26.3	24.9
% female employees	%	23.7	23.3	23.4
% of women in management positions ⁽⁷⁾	%	17	19	18
Recruiting ⁽⁸⁾		1,022	864	883
% of female recruits	%	25.0	20.0	23.2
% of 50 years old and over recruits	%	9.8	8.2	8.9
% of below 30 years old recruits	%	41.5	39.5	42.8
Departures ⁽⁹⁾		1,905	1,352	4,092
• Of which, resignations		379	362	405
• Of which, redundancies		252	224	191
• Of which, left due to a sale/merger		213	0	2,679
Part-time employees	%	3.7	3.3	3.3
Training				
Number of training hours ⁽¹⁰⁾	thousands	458	307	
Training hours per employee		34	23	
Number of permanent employees receiving training ⁽¹¹⁾		11,534	10,082	
Number of employees who benefited from e-learning		4,442	3,585	
Number of safety training hours	thousands	150		
Number of safety training hours per employee		17		
Number of employees receiving safety training (excluding e-learning)		8,776		
Number of employees taking safety-related e-learning courses		4,263		
Number of environment-related training hours		15,837		
Number of environment-related training hours per employee		7.6		
Number of employees receiving environment-related training (excluding e-learning)		2,070		
Share of work-study students ⁽¹²⁾	%	4.6	4.5	3.1
Share of Group companies conducting Annual Performance Reviews	%	95.6		
Health and welfare				
Absenteeism ⁽¹³⁾	%	3.5	3.4	3.8
Hours off work on medical grounds	%	70.7	73.5	69.4
Quota of employees benefiting from medical follow-up	%	83	84	84
Quota of employees benefiting from work incapacity supplementary cover	%	95	95	89
Quota of employees benefiting from additional life cover	%	95	95	81
Quota of employees benefiting from death benefit coverage ⁽¹⁴⁾	%	80	80	73
Compensation				
Quota of employees benefiting from minimum compensation guarantees	%	99	98	98
Quota of employees benefiting from collective variable compensation elements	%	65	60	
Quota of employees benefiting from individual variable compensation elements	%	18	15	
Representation				
Quota of employees benefiting from personnel and/or trade union representation ⁽¹⁵⁾	%	94.2	94.9	94

		2014	2013	2012
SOCIETAL				
Number of "Common Ground" ⁽¹⁶⁾ initiatives		985	644	280
Share of Group sites taking part in Common Ground [®]	%	90	81	
Share of European sites taking part in the Common Ground [®] programme	%	85		
Share of American sites taking part in the Common Ground [®] programme	%	93		
Share of Asian sites taking part in the Common Ground [®] programme	%	94		
Subcontractors and suppliers				
Suppliers receiving the ARKEMA Supplier Code of Conduct		16,200		
• Of which goods and services suppliers	%	83		
• Of which logistics providers	%	6		
• Of which raw materials providers	%	11		
Responsible product stewardship				
Number of substances with REACH registration		274		
Number of voluntary GPS sheets published on finished products		145		
INNOVATION				
Number of patent applications filed for solutions to sustainable development challenges		81	79	

(1) Number of accidents per million hours worked.

(2) AIMS audit (Arkema Integrated Management System) which combines ISO 9001, ISO 14001 and OHSAS 18001 requirements.

(3) Or RCMS (Responsible Care[®] Management System) in the United States.

(4) 2012 data revised as indicated in paragraph 2.2.1.2 of this reference document.

(5) GHG emissions concerning gases covered in the Kyoto Protocol.

(6) Breakdown by region, age, category of position and gender, as detailed in paragraph 2.5.1.1 of this reference document.

(7) Position level 15 or above according to the Hay classification.

(8) Breakdown by region, age, category of position and gender, as detailed in paragraph 2.5.1.2 of this reference document.

(9) Breakdown by region, as detailed in section 2.5.1.2 of this reference document.

(10) Recorded in companies held 50% or more by the Group and employing over 30 people, which accounts for 93.9% of the total headcount.

(11) Excluding e-learning.

(12) Share of work-study students compared to headcount (scope: Arkema France).

(13) Total number of hours off work (excluding authorised leave of absence) relative to the total number of man-hours worked.

(14) Guarantee representing at least 18 months' salary.

(15) Breakdown by region, as detailed in paragraph 2.5.4.2 of this reference document.

(16) Initiative launched by ARKEMA as part of its relations with its manufacturing site stakeholders.

2.8 FAIRNESS OPINION OF AN INDEPENDENT THIRD PARTY PURSUANT TO ARTICLE L. 225-102-1 OF THE FRENCH COMMERCIAL CODE

BUREAU VERITAS SA

67/71, boulevard du Château, 92571 Neuilly-sur-Seine
RCS Nanterre B 775 690 621

2

VERIFICATION REPORT ON THE SINCERITY OF THE INFORMATION RELATIVE TO THE TRANSPARENCY REQUIREMENTS ON THE DISCLOSURE BY COMPANIES OF ENVIRONMENTAL AND SOCIAL TOPICS

The reviewed information is relative to year ended December 31, 2014.

REQUEST, RESPONSIBILITIES AND INDEPENDENCE

At the request of the Arkema group, and in accordance with the requirements of article L.225-102-1 of the French Commercial Code (*Code de commerce*), we performed, as independent third party, an independent verification of the social, environmental and societal information contained within the 2014 Arkema reference document.

The preparation and presentation of the qualitative and quantitative information for the publication required by the article R.225-105-1 of the French Commercial Code (*Code de commerce*) is the sole responsibility of Arkema group. The collection and management of this information has been coordinated by the Sustainable Development Direction of Arkema group in accordance with:

- the reporting tools REED (environment) and Safetylog (health & safety) as well as the environmental and health & safety linked procedures;
- the reporting tools AREA 1 and AREA 2 for the social information as well as the linked guidance.

This is further named "the reporting methodology", available at the corporate level, and a summary of which is included under the form of a methodological note in the reference document section 2.6, which will be available on Arkema group's website.

It's our role, in accordance with the requirements of the article R.225-105-2 of the French Commercial Code (*Code de commerce*), to conduct the verification pursuant to the issuing of this verification report.

The conclusions of this report include:

- an attestation of completeness of the social, environmental and societal information required by the article R.225-105-1 of the French Commercial Code (*Code de commerce*);
- a reasoned opinion on the sincerity of the published information as well as a limited assurance opinion of the quantitative information, and if any, a reasoned opinion on the explanation given in case of the omission of certain consolidated information.

This opinion is independently stated, and without partiality. Our work has been conducted according to the professional practices. Bureau Veritas has implemented its Code of Ethics which is applied by its staff.

NATURE AND SCOPE OF OUR WORK

We conducted our works from the beginning of October to the signature of the present report, for a period of about 13 weeks, by a team of 7 verifiers. We conducted around 95 interviews during this mission.

We verified that the social, environmental and societal information covers the consolidated perimeter as defined in the articles L 233-1 and L 233-3 of the French Commercial Code (*Code de commerce*). The perimeter's adjustments for the social and environmental information are clarified in the methodological note of the reference document

For the attestation of completeness of the information we undertook the following work:

- taking note of the Group policy relative to sustainable development, according to its social and environmental impacts and its societal commitments;
- comparison of the information presented in the reference document 2014 with the list as provided for in article R 225-105-1 of the French Commercial Code (*Code de commerce*);
- verification of the explanation given in case of omission of consolidated information.

For the reasoned opinion on the sincerity of the information, we conducted our work in accordance with the French legal order, published on the 13th May 2013 determining the methodology according to which the independent third party conducts its mission, and with our methodology.

We conducted the following procedures in order to provide limited assurance that nothing has come to our attention that causes us to believe that the produced information contains any material misstatements likely to call into question its sincerity, in all material aspects according to the "reporting methodology":

- review of the "reporting methodology" with regard to relevance, reliability, completeness, understandability of information;
- identification of the persons, within the Group, who are in charge of the collection, and if any, those who are responsible for the procedures of internal control and risk management;
- verification of the implementation of a process for the collection, treatment, compilation, internal control of the information to guarantee their completeness and consistency;
- examination of the internal control and risks management procedures relative to the preparation of the information;
- interviews with persons in charge of the social, environmental and societal reporting;
- selection of consolidated information to be tested ⁽¹⁾ and definition of the nature and the scope of the tests, taking into consideration their importance with regard to the social and environmental consequences related to the Group's activities as well as to its societal commitments.
- Regarding the quantitative information we recognized as to be the most important we have:
 - performed an analytical review of the information and check for a sample of information the calculations and the compilation of the information at the corporate level and the controlled entities;
 - selected a sample of sites ⁽²⁾ based on their activities, their contribution to the consolidated information, their localization, the results of the previous verification exercises and a risks analysis.
- Regarding each selected entity we performed the following work:
 - interviews to check that the "the reporting methodology" is correctly implemented;
 - performance of detailed tests, checking, based on sampling, the calculation applied and reconciling the information with supporting evidences.

The entities selected accounted for an average of more than 20% of the consolidated information, recognized as the most important, for each topic environment and social.

- Regarding the qualitative information, for the information we believe to be the most important we have conducted interviews, examined source documents and, if any, public information;
- Regarding the explanations relative to the missing/omitted information, we assessed their relevance.

COMMENTS ON THE "REPORTING METHODOLOGY" AND ON THE INFORMATION

The procedures and process for the reporting of the Group lead us to make the following comment:

Even though it is specified in the reference document, it is relevant to mention that some information doesn't cover the whole consolidated perimeter (review of agreements on matters of occupational health, measures taken for the employment and integration of disabled people).

ATTESTATION OF COMPLETENESS OF THE INFORMATION

Based on our work, within the perimeter defined by the Group, we attest to the completeness of all the required social, environmental and societal information.

SINCERITY OPINION AND LIMITED ASSURANCE

Based on our work, nothing has come to our attention to suggest that the social, environmental and societal information communicated by Arkema group in its 2014 reference document is not fairly presented in all material aspects in accordance with the reporting methodology.

Puteaux, February 16 2015

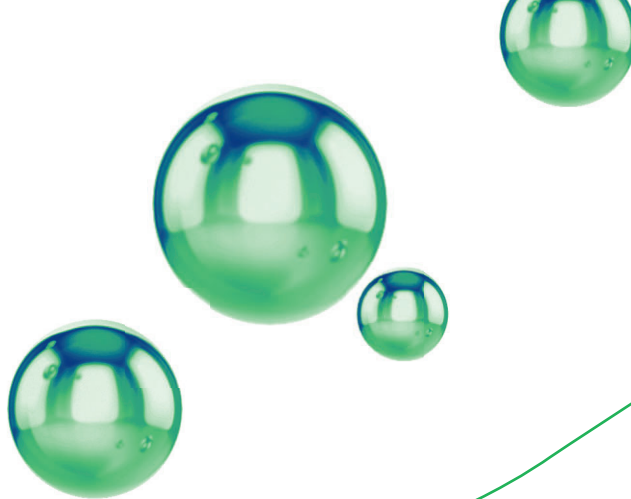
Bureau Veritas

Jacques Matillon

Agency Director

(1) Social information: total headcount breakdown by gender, age, status category, employees recruitments and departure, individual variable compensation elements, number of training hours, % of companies performing annual performance reviews, part of the workforce working part-time, absences for medical reasons, part of the workforce benefiting from personnel representation or/and trade union representation, Collective agreements signed in 2014; part of the workforce receiving routine medical care/monitoring, part of women in executive posts. Environmental: consumption of energy, GHGs emissions breakdown by par zones, VOC emissions, COD emissions to water (4 major indicators), as well as substances contributing to acidification, dust emissions, water withdrawn, suspended solids, hazardous waste, non-hazardous waste, total CO₂ emissions, HFC emissions, CO₂ emissions of scope 2 breakdown by zones, estimation of products transport related CO₂ emissions of scope 3, part of the various modes of transport that emit less greenhouse gas, loading ratio of road bulk shipment, part of sites ISO 14001 certified breakdown by par zones, number of environment training hours, number of performed energy assessments breakdown by zones, number of ISO 50001 certified sites; number Akenergy investments made by the group breakdown by zones, expected gains related to Akenergy investments, net purchase of energy breakdown by zones, net purchase of energy breakdown by category, part of gas within the purchase of energy, part of the purchase of energy coming from low-carbon electricity, number of patent applications related to innovative solutions, part of the Group turn-over obtained in whole or part from renewable raw materials. Health & safety information: TRIR, LTRIR; part of the sites OHSAS 18001 certified breakdown by zones, number of health and safety training hours, number of employees who have benefited from at least one health and safety e-learning training course. Societal information: number of "Common Ground®" initiatives and part of the companies taking an active part in these events, number of suppliers who received the Supplier's Code of Conduct.

(2) For social information the companies: CECA SA; Coatex SAS; Arkema Inc, those entities represent around 22% of the total headcount. For environmental and health & safety information, the following sites : Riom, Saint Bauzile, Carling, Lannemezan, Marseille, Jarrie et Balan EVA in France and Beaumont, Calvert City, Clear Lake in the USA, the contribution of those sites to each of the 4 major indicators represents: 63% of GHGs; 46% of energy consumption; 32% of VOC and 30% of COD.



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