Kemira

Corporate Sustainability 2019

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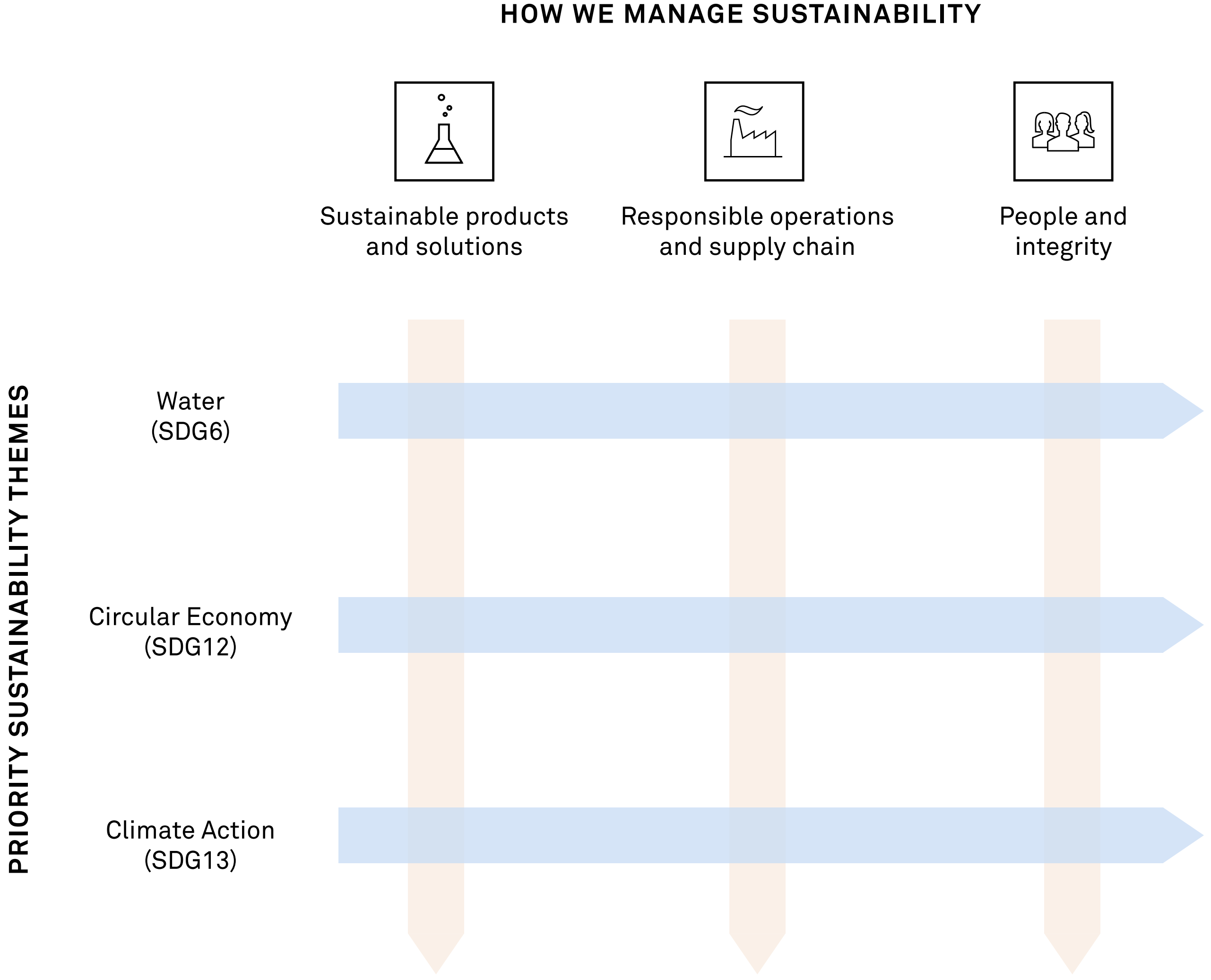
Corporate Sustainability at Kemira

Sustainability is an integral part of how we do business at Kemira. It is not seen as something separate, but instead, it is built into all processes, policies and operations. This means that our leadership and all our employees must overlay their decisions with a sustainability lens.

As we continue to integrate sustainability in Kemira, we have separated out how we manage sustainability from our priority sustainability themes.

In the former, our focus is on developing and improving sustainability considerations across our value chain, guided by our materiality assessment and the leading sustainability research, standards and examples. While this approach tends to be very technical by nature, it is essential in order to build a strong safety net for Kemira and our customers.

The majority of our stakeholders are not sustainability experts though, and they tend to prioritize in terms of themes. This is why we have overlaid our management approach with three priority Sustainable Development Goals (SDGs). The SDGs are a common language that we share with our stakeholders for sustainability. They allow us to show clearly how we can best contribute to overcoming shared societal challenges.



HOW WE MANAGE SUSTAINABILITY

Sustainable products and solutions

Responsible operations and supply chain

People and integrity

PRIORITY SUSTAINABILITY THEMES

Water (SDG6)

Circular Economy (SDG12)

Climate Action (SDG13)

ADDING TO THE SDGS

The United Nations Sustainable Development Goals (SDGs) offer us a framework through which to evaluate how Kemira currently is, and could be, contributing to sustainable development. The SDGs provide a common language around sustainability and help us align our activities with those of our stakeholders by offering a shared vision.

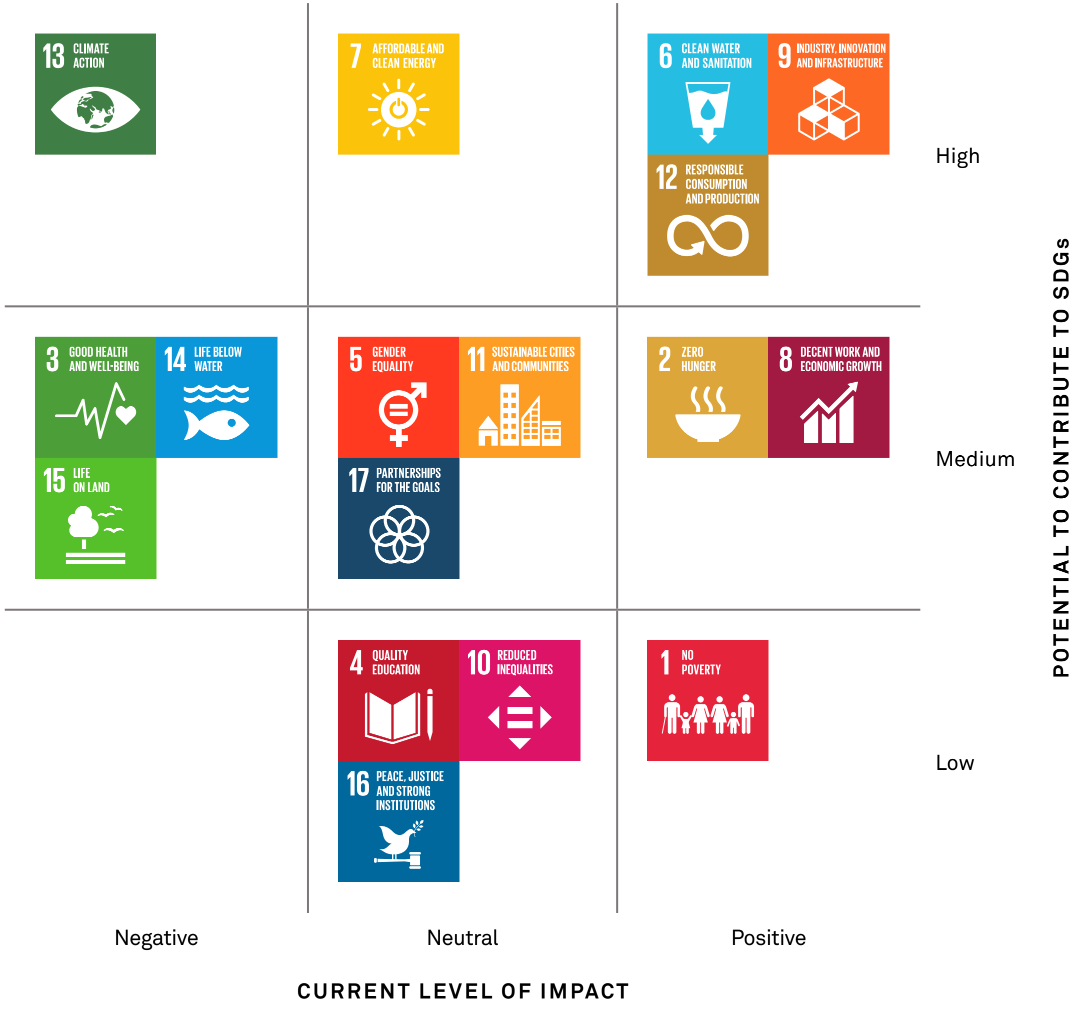
Drawing from the Chemical Sector SDG Roadmap published by the World Business Council for Sustainable Development (2018), we have mapped Kemira's impact and potential across the 17 SDGs. Our activities span all the SDGs to different degrees, and we recognize the interconnectedness of the SDGs. However, we wish to focus our efforts where Kemira can make the biggest difference. As a result of this mapping, we have identified three priority themes for Kemira:

- Water (SDG6)
- Circular Economy (SDG12)
- Climate Action (SDG13)

To obtain our mapping, we assessed the relevance of each SDG by referring to the global indicator framework. The targets and indicators of each SDG give a detailed picture of where we must work together to achieve each SDG and provides a reference to assess Kemira's impact and potential to contribute.

We compared Kemira's strategy, business model and corporate sustainability priorities to the indicator framework, to identify what our current impact is and our potential to contribute to the SDGs. In cases where Kemira both has positive and negative impacts or low and high potential, the mapping combines these to arrive at an overall average. The assessments have been done in relative terms within Kemira. In other words we do not compare Kemira to other companies. The mapping is not an assessment of how well we are performing on each SDG, instead it allows us to better prioritize our efforts.

MAPPING KEMIRA'S IMPACT AND POTENTIAL


13 CLIMATE ACTION
7 AFFORDABLE AND CLEAN ENERGY
6 CLEAN WATER AND SANITATION
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
High
3 GOOD HEALTH AND WELL-BEING
14 LIFE BELOW WATER
15 LIFE ON LAND
5 GENDER EQUALITY
11 SUSTAINABLE CITIES AND COMMUNITIES
17 PARTNERSHIPS FOR THE GOALS
2 ZERO HUNGER
8 DECENT WORK AND ECONOMIC GROWTH
Medium
4 QUALITY EDUCATION
10 REDUCED INEQUALITIES
16 PEACE, JUSTICE AND STRONG INSTITUTIONS
1 NO POVERTY
Low
POTENTIAL TO CONTRIBUTE TO SDGs
Negative
Neutral
Positive
CURRENT LEVEL OF IMPACT

OUR CONTRIBUTION TO THE PRIORITY SDGs

6 CLEAN WATER AND SANITATION

SAFE AND CLEAN WATER

Clean water is essential not just for life itself, but for making sure we can live high-quality, enjoyable lives. Climate change and the growing global population mean that ensuring everyone has access to this most precious of resources is one of our biggest challenges.

It's estimated that worldwide, 780 million people do not have access to an improved water source, and an estimated 2.5 billion people, or more than 35% of the global population, lack access to improved sanitation.

Only 3% of the earth's water is fresh, and an even smaller percentage of that is available for drinking. At Kemira we see our role as a custodian of this valuable resource because we have the products and ability to help make the most of this finite resource.

As a single company we can't tackle this problem on our own, but through collaboration with our customers – cities and municipalities, and water-intensive industries – we can make a real difference.

We do this in three main ways. Firstly, through our work with cities' and municipalities' water treatment plants, we help ensure citizens have access to the clean, safe, and affordable drinking water they need for a healthy life. Secondly, we help municipalities and industries ensure that discharged wastewater meets environmental permit standards, reducing the load on local water bodies. Thirdly, we help water-intensive industries use less water and make their processes more sustainable, for example by enabling them to use recycled water rather than freshwater in their processes.

In our own operations, we are continuously evaluating opportunities to decrease water withdrawal, consumption, discharge, and associated impacts through water recycling and reuse. This includes process redesign and optimization projects in our upgraded and new production lines. Using the World Resources Institute's Aqueduct Water Risk Atlas, less than 1% of total water withdrawal takes place in area of water stress (areas in which more than 40% of available water is used by industry, household and agriculture).

Water scarcity is a problem that is not going away anytime soon. The World Health Organization estimates that half of the world's population will be living in water-stressed areas by 2025, which is only a few years away. At Kemira, we want to help society adapt and build resilience, so we all start using water in the most sustainable way possible.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

ADDING CIRCULARITY TO OUR ECONOMY

The circular economy can help us minimize impacts on the environment and achieve sustainable growth. At Kemira, we see that chemistry is at the heart of enabling the circular economy, and we have a key role in helping our customers achieve their circularity and sustainability ambitions.

Kemira is in the business of innovating in chemistry to solve problems for our customers and society. This includes resource scarcity and consumption. As global consumption grows, this puts increasing pressure on our planet and resources. To decouple growth from natural resource consumption we need to adopt a circular mindset where we design out waste and increase resource productivity.

We enable our customers globally and across industries to improve their water, energy and raw material efficiency. As experts in chemistry, we enable circularity through the design of our products and increasingly adopt circular economy business models in our own operations.

We are increasing our resource productivity, for example. In 2019, 24% of raw materials used in Kemira's global manufacturing came from recycled sources or industrial by-products. In our inorganic coagulants line, 70–80% of raw material comes from recycled sources (scrap iron and spent pickle liquor). These are used in the treatment of wastewater, drinking water, and in many other industrial water treatment applications.

In 2018, Kemira went a step further and started mining a landfill that contains several million tons of ferric sulfate – helping put some 30 years of accumulate industrial by-product back into our circular economy.

We also provide product-as-a-service business models through Total Chemistry Management and KemConnect. This combines smart technology with payment for performance and aligns incentives away from volume towards value.

Kemira participates in sharing platforms through our manufacturing sites. Integrated operations with our customers ensure maximum efficiencies in energy use, but we also go further. We also provide excess process heat to local district heating networks around our sites. In Helsingborg, for instance, our site operates an industrial park that provides 60% of the total park's energy needs, transformed via an energy hub into steam, electricity, compressed air and cooling. 30% of the energy goes beyond the fence line and is delivered to the city's district heating network. This district heating component has saved about 1.6 million tons of CO_2 cumulatively.

In these and many other ways, Kemira is adding to the circular economy, either through our own operations or by helping our customers and communities.

CLIMATE ACTION

In 2018, Kemira started decoupling growth from greenhouse gas (GHG) emissions, increasing production and reducing absolute emissions. This trend continued in 2019, supported by renewed focus in this area and working towards setting a new climate change target for Kemira.

Kemira's previous target on GHG emissions was a 20% reduction by the end of 2020 from a 2012 baseline, indexed to the sites representing our largest sources of emissions (cumulatively representing 90% of Scope 1 and Scope 2 GHG emissions).

At the end of 2019, Kemira set a target to reduce combined Scope 1 and Scope 2 GHG emissions by 30% across the entire company by 2030 compared to a 2018 baseline of 930 thousand tons CO_2eq. In aligning our company's climate target with the expectations of our stakeholders our ambition is to be carbon neutral by 2045 for combined Scope 1 and Scope 2 GHG emissions. This new target shows that Kemira fully supports the ambition of the UNFCCC Paris Agreement and that we recognize our contribution to the collaboration needed across sectors and stakeholders to ensure the implementation of solutions.

The key solutions allowing us to reduce GHG emissions include: sourcing zero-emission electricity, switching to renewables for our sites, electrification of processes at our sites, and energy efficiency. Offsetting through nature-based solutions remains an option, but at the lowest level in our mitigation hierarchy.

For our Scope 3 GHG emissions, Kemira is committed to working with suppliers to decrease the carbon footprint of our purchased goods and services. To that end, we will also be encouraging suppliers to set their own ambitious GHG reduction targets aligned with the Paris Agreement. Our R&D function is working towards developing more products from bio-based and industrial by-products raw materials, helping to further reduce our Scope 3 emissions.

Kemira's climate action is also readily visible in our products and solutions. Over half of our revenue comes from products that improve end-use resource efficiency. Energy efficiency improvements are a key contributor to this resource efficiency, but we also help customers in other ways like improving biogas yields at wastewater treatment plants.

OUR CONTRIBUTION BEYOND THE PRIORITIZED SDGs

While Kemira has chosen three SDGs to focus on, our mapping shows that Kemira has an impact on and contributes to all the SDGs. We also recognized that the SDGs are interconnected. In this image, we show the main connections between our priority SDGs and the other SDGs. We have also highlighted our main contributions to these SDGs.

6 CLEAN WATER AND SANITATION

Water (SDG6)

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Circular Economy (SDG12)

13 CLIMATE ACTION

Climate Action (SDG13)

3 GOOD HEALTH AND WELL-BEING

- We are committed to the safety of our employees, customers, contractors, supply chain and communities. This means continuous improvement in the safe operation of our assets and handling of chemicals, and pro-actively providing information about safe use of chemicals.
- Our products and solutions are also firmly rooted in providing safe, clean water to consumers and reducing the burden on the environment.

11 SUSTAINABLE CITIES AND COMMUNITIES

- We are an active and responsible member of the communities within which we operate. We have ensured that our sites build energy and material synergies such as providing district heating or using waste/side streams from other industries.
- A large part of our business comes from treatment of waste and storm water, enhancing the availability of safe clean water in cities.

14 LIFE BELOW WATER

15 LIFE ON LAND

- Our commitment to safety and the chemical industry's Responsible Care® program ensures that we minimize waste and emissions into the environment.
- Our choice of businesses and our strategy focus on the treatment of our customers water, minimizing withdrawals through better reuse and ensuring that any discharge meets environmental regulations to ensure the well-being of life on land or below water.

8 DECENT WORK AND ECONOMIC GROWTH

- Kemira provides almost 5,000 employees with decent work and wages, and we ensure this across our supply chain by requiring our business partners to adhere to our Code of Conduct
- Economic sustainability is central to our company. We aim for growth and good returns on investment to support the economy.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

- Kemira R&D is continually innovating to improve the sustainability of our products. We apply sustainability check at each Gate in our New Product Development process to ensure each new product is an improvement on its predecessor.
- We invest in best available process technology and systems at our sites.

17 PARTNERSHIPS FOR THE GOALS

- We collaborate with academia, research institutions, customers and suppliers to develop and deliver innovative products on to the market.
- We participate in relevant policy and regulatory consultations and discussions together with our trade associations to ensure our strategy aligns with the aims of our stakeholders.

RECOGNITIONS 2019

CDP

Kemira received a B score in CDP's 2019 rankings. This puts Kemira in the top quartile of the chemicals sector companies requested to disclose to CDP, reflecting the company's continued commitment to transparency, increasing energy efficiency and sourcing renewable energy for our operations. This 2019 result does not yet reflect Kemira's updated climate change target. However, the 2019 result shows that Kemira is on the right track, balancing sustainability with profitability. The score aligns well with Kemira's focus on products that help customers do more with less – less raw materials, water and energy.

The high number steady growth of companies included in the CDP disclosure – now representing over 50% of global market capitalization – provides Kemira with a true performance benchmark.

CDP™
DISCLOSURE INSIGHT ACTION

ECOVADIS

Kemira has been awarded the Gold Recognition Level for the CSR (Corporate Social Responsibility) performance for the fifth consecutive year by EcoVadis, a collaborative platform providing sustainability ratings and performance improvement tools for global supply chains. With a score of 75/100 points, Kemira is among the top 1% of the 55,000 companies participating in EcoVadis. The EcoVadis methodology framework assesses companies' policies and actions as well as their published reporting related to the environment, labor and human rights, ethics and sustainable procurement.

The EcoVadis methodology is based on the international sustainability standards of the Global Reporting Initiative, United Nations Global Compact (UNGC), and ISO 26000. Ecovadis reporting gives confidence to our customers and allows us to position Kemira across a broad range of sustainability themes: environment, fair labor and human rights, ethics and sustainable procurement.

GOLD
2019
ecovadis
CSR Rating

CEFIC RESPONSIBLE CARE AWARD

In 2019, Kemira won the European chemical industry's prestigious Responsible Care® award for environmental responsibility. It was awarded to Kemira's ferric sulphate plant in Pori (Finland), that utilizes recycled industrial by-product in its drinking water and wastewater treatment products.

Before 2017, Kemira's plant in Pori received its main raw material as a by-product from a titanium dioxide plant in the same industrial area. In January 2017, supply from the plant was interrupted and, to ensure the continuous availability of raw material, Kemira investigated the ferric sulphate landfill nearby that had accumulated from excess unused side-streams from titanium dioxide production.

Following a successful testing period, Kemira is now utilizing a landfill that contains several million tons of ferric sulphate raw material, putting some 30 years of accumulated industrial by-product back into use, and securing supplies for many years to come.

Responsible Care®
OUR COMMITMENT TO SUSTAINABILITY

Our management approach

Our corporate sustainability work is guided by our commitments to the Code of Conduct, internationally defined sustainability principles, and stakeholder expectations, as seen in our strategy, corporate policies and integrated management system.

MATERIALITY

COMMITMENTS

The Kemira Code of Conduct is the foundation for our business conduct at Kemira. Our values are embedded in our corporate culture and connect each of us around the world. Our Code sets a framework around our values and reflects our commitments towards our key stakeholders. We also expect our suppliers and other business partners to maintain the same high standards in their own operations, as defined in our Code of Conduct for Business Partners (CoC-BP).

The United Nations Global Compact has been signed by Kemira Oyj as our commitment to respect and promote human rights, implement decent work practices, reduce our environmental impact, and combat corruption.

Responsible Care® is a voluntary commitment by the global chemical industry to drive continuous improvement and achieve excellence in environmental, health and safety and security performance. Through Responsible Care, global chemical manufacturers commit to pursue an ethic of safe chemicals management and performance excellence worldwide. This helps to enhance public confidence and trust in the industry's dedication to safely manage chemicals throughout their lifecycle while ensuring that chemistry can continue to contribute to a healthier environment, improved living standards and a better quality of life for all. Kemira is committed to operate according to the principles of Responsible Care®.

STAKEHOLDER EXPECTATIONS

Our key stakeholders include our customers, shareholders, lenders, employees and suppliers. Other relevant stakeholder groups include the local communities where Kemira operates, regulatory bodies, trade associations, decision-makers and opinion leaders.

- A significant share of our investors practice Socially Responsible Investing (SRI). These SRI signatories represent 27% of the ownership of Kemira shares.
- Many of our customers are sustainability leaders in their respective industrial sectors. Kemira plays a role in their value chains, and we are expected to demonstrate the same strong commitment to sustainable business as our customers.
- Our employees see sustainable business conduct as an important factor behind their engagement with Kemira, according to our employee surveys.

Our approach to stakeholder engagement includes activities ranging from information sharing to active dialogue and collaboration on issues of mutual interest. We regularly review our stakeholders' expectations and potential concerns.

Stakeholder engagement (GRI 102-40, 42, 43, 44)

LIST OF STAKEHOLDER GROUPS	IDENTIFYING AND SELECTING STAKEHOLDERS	APPROACH TO STAKEHOLDER ENGAGEMENT	KEY TOPICS AND CONCERNS RAISED	KEMIRA'S RESPONSE
Customers	• Our customers are Kemira's main source of value creation • Our customers' expectations and needs drive our product portfolio and offerings	• Direct customer contacts • Customer webinars, events , newsletters • Customer satisfaction measure Net Promoter Score has risen to 39 (33 in 2018) and is currently on a "good" level. • Key drivers in customer satisfaction are the technical service, speed and proactivity, as well as our ability to offer new solutions	• Sustainable product offerings and chemical safety • Capability to proactively understand customer needs and to offer new products and solutions • Business ethics • Our sustainability management and performance throughout the value chain	• R&D project portfolio management • Updated sustainability check in New Product Development Process • Product lifecycle management for all aspects of product safety • Improve understanding of customer needs beyond current offerings • Sustainability performance data submitted on request
Shareholders and lenders	• Share of our value creation through dividends and interest payments • Expectations for return on investment, good corporate governance practices and sustainability performance	• Regular events like roadshows, conference calls and one-to-one meetings. In 2019, we had 22(20) roadshow days, and 260 (280) institutions were met in 130 (150) meetings	• Overall management approach to sustainability issues, including climate change impact mitigation • Potential business risks and opportunities related to sustainability of products, operations, ethics and compliance	• Transparent and regular reporting and disclosure • Participation in CDP Climate Change program • Responding to rating company and investor questionnaires
Employees	• Share of our value creation through compensation and benefits • Employees' engagement, well-being and competencies influence our operational performance and value creation	• Performance management and development process • Regular Town hall meetings globally • Co-operation with employee representatives eg. Kemira European Forum • Engagement surveys • Ethics and Compliance hotline • Local wellbeing programs in all regions	• Understanding Kemira's strategy and future direction • New ways of working • Ways of developing competences for the future • Company sustainability impact and efforts	• Strategy refresh communication and action planning • Performance and development discussions • Leadership development • Systematic competence development • Team engagements on sustainability
Suppliers	• Share of our value creation through payments for goods and services • Suppliers' sustainability performance may impact our operational efficiency and business risks	• Working closely with core suppliers to help them meet our sustainability performance expectations, and take corrective actions if needed	• Safety • Business ethics and compliance	• Suppliers are asked to commit to Kemira Code of Conduct for Business Partners • Supplier sustainability assessments and audits
Local communities	• Share of our value creation in the form of tax payments and employment. • The safety and environmental performance of our operations may impact the acceptance of our local presence	• Dialogue and collaboration with local communities at major sites to ensure we understand and address their concerns • Collaboration with schools and universities	• Exposure to safety and environmental risk • Employment opportunities	• Environmental impact and process safety risk assessments • Regular and open dialogue with local communities (e.g. open door days)
Regulatory bodies, trade associations, decision-makers and opinion leaders	• These stakeholders have the capability to influence or make political decisions on legislation with an impact on our operations and business	• Memberships in industrial trade associations • Subject-specific dialogue with regulatory bodies on national and EU level	• Resource efficiency • Chemicals safety • Climate change mitigation	• Position paper on relevant topics such EU review on urban waste water treatment • Actively participating in dialogue on EU directive proposal on single-use plastic • Participation in CEFIC • Participation in the Chemical Industry Federation of Finland and their "Carbon Neutral Chemistry 2045" roadmap development

HOW WE MANAGE SUSTAINABILITY AT KEMIRA

Sustainability is at the core of what we do and supports execution of our strategy and long-term value creation.

SUSTAINABILITY PRIORITIES

Our sustainability priorities are based on the most material impact of our business model, on the increasing expectations of our customers, investors and other stakeholders, and on our commitment to the Kemira Code of Conduct and internationally defined sustainability principles.

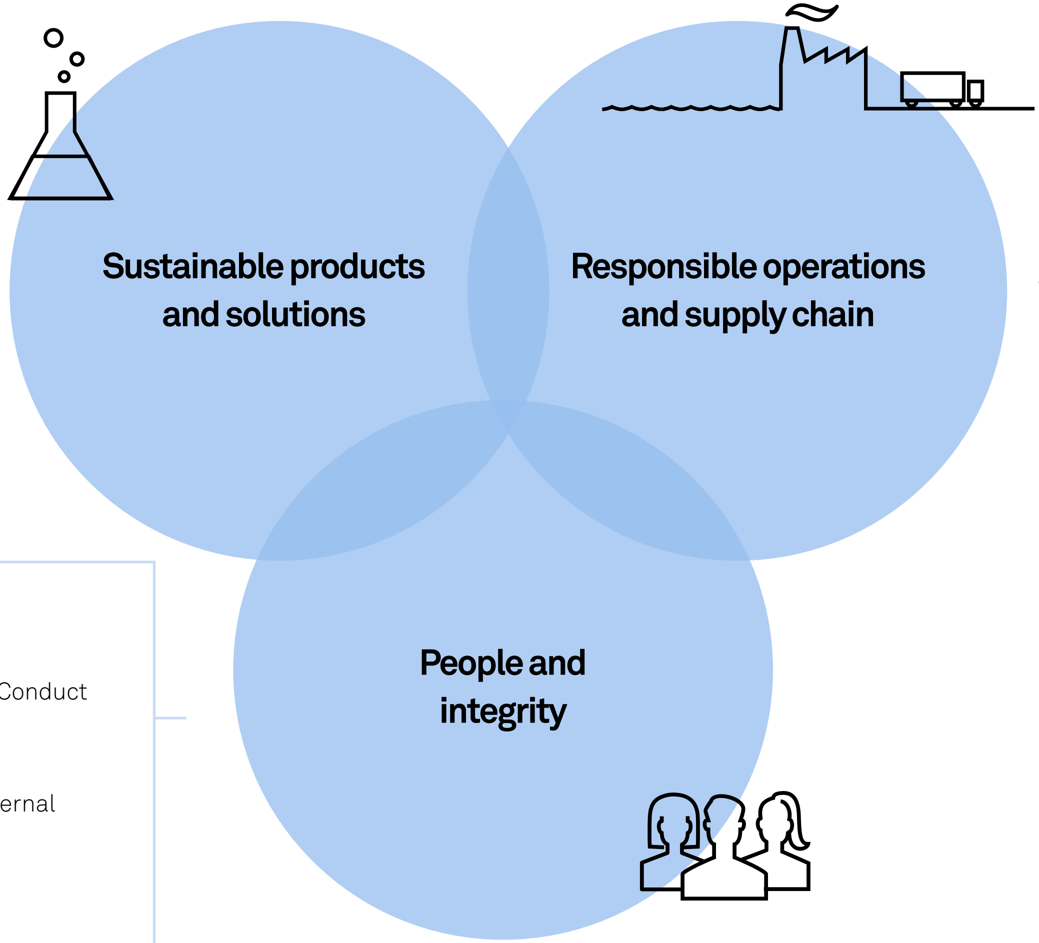
Kemira measures progress in the priority areas through Group level KPIs and targets which are approved by the Management Board and reviewed by the Board of Directors.

We have three priority areas which cover the six most material topics and their impact.

OUR PRIORITIES	MATERIAL TOPICS
Sustainable products and solutions	Product sustainability in end-use: Products improving our customers' sustainability and use-phase resource efficiency Product stewardship: Chemical safety management throughout the lifecycle of our products
Responsible operations and supply chain	Responsible management of our operations to ensure safety of our people, and to protect our assets and environment. Key topics are Workplace safety and Climate change Supplier management for risk and compliance management
People and integrity	People: Engagement and competence development of our employees Integrity: Responsible business practices in our own operations and with our business partners

TURNING PRIORITIES INTO COMMITMENTS AND TARGETS

Sustainability is an integral part of strategy and implementation at Kemira.



Sustainable products and solutions

COMMITMENTS

- Incorporating sustainability into our products and solutions
- Proactive product stewardship throughout the products' lifecycle

KPIs AND TARGETS

- At least 50% of our revenue is generated through products improving customers' resource efficiency

Responsible operations and supply chain

COMMITMENTS

- Ensuring responsible operations to protect our assets, environment, employees, contractors, customers and communities
- Ensuring compliance with responsible business practices in our supply chain

KPIs AND TARGETS

- Workplace safety TRIF 2.0 by 2020, long-term vision of zero
- Reduce combined Scope 1 & 2 GHG emissions 30% by 2030
- Supplier management; 90% of direct key suppliers screened through sustainability evaluation through assessments and audits (Baseline 55% in 2017)

People and integrity

COMMITMENTS

- Culture and commitment to people
- Ensuring compliance with Kemira Code of Conduct

KPIs AND TARGETS

- Employee engagement index above the external industry norm
- Leadership development activities, two per people manager position, cumulative target 1,500 by 2020 (2015=0)
- Integrity index above the external industry norm

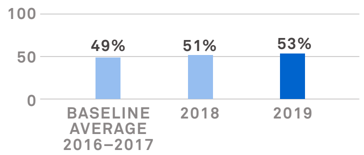
KPIs, TARGETS AND PERFORMANCE 2019

Sustainable products and solutions

PRODUCT SUSTAINABILITY

AHEAD OF TARGET

Share of revenue from products used for use-phase resource efficiency. At least 50% of Kemira's revenue generated through products improving customers' resource efficiency.

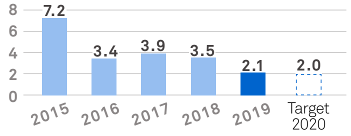


Responsible operations and supply chain

WORKPLACE SAFETY

IN PROGRESS

Achieve zero injuries in long term; TRIF* 2.0 by the end of 2020.

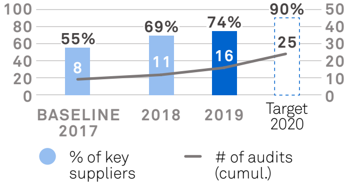


* TRIF = Number of Total Recordable Injury Frequency per million hours, Kemira + contractors

SUPPLIER MAGEMENT

IN PROGRESS

% of direct key suppliers screened through sustainability assessments and audits (cumulative %). The target includes five sustainability audits for highest risk ** suppliers every year, and cumulatively 25 by 2020.

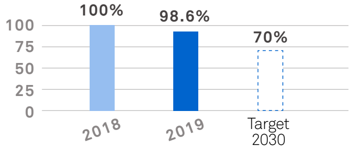


** Suppliers with lowest sustainability assessment score.

CLIMATE CHANGE

IN PROGRESS

Reduce by 30% combined Scope 1 and Scope 2 GHG emission across the whole company by 2030 compared to 2018 baseline (930 thousand tonnes CO_2eq). Ambition to be carbon neutral by 2045.

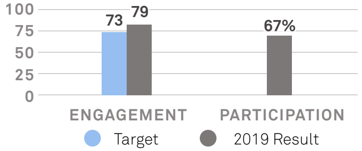


People and integrity

EMPLOYEE ENGAGEMENT SCORE BASED ON MYVOICE SURVEY

IN PROGRESS

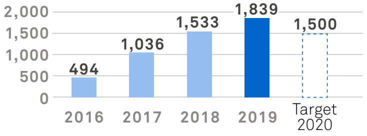
Engagement score above the external industry norm.



LEADERSHIP DEVELOPMENT ACTIVITIES PROVIDED, AVERAGE

AHEAD OF TARGET

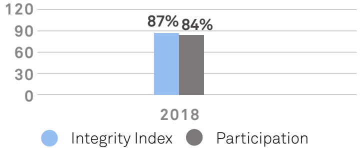
Two leadership development activities per people manager position during 2016-2020, the cumulative target is 1,500 by 2020.



INTEGRITY INDEX

IN PROGRESS

KPI to measure compliance with the Kemira Code of Conduct. The target is to maintain the Integrity Index level above the industry benchmark of 77%.



Based on responses to the integrity focused questions in the Voices@Kemira biennial survey.

GOVERNANCE

The Management Board approves our corporate sustainability priorities, key performance indicators (KPIs) and targets. The Board of Directors is duly informed about these targets, and our related performance, and they also approve the sections of the Annual Report which cover sustainability information -the Business Overview, Corporate Sustainability and non-financial information statement in the Board Review. Climate-related risks and opportunities are part of the overall governance.

Responsibility for individual corporate sustainability targets is shared between the members of the Management Board.

The Director of Sustainability is responsible for ensuring that relevant management processes relating to material corporate sustainability topics are being developed and implemented as part of our strategy and integrated management system. The Corporate Sustainability Management Team has members from different functions and the business segments. It acts as a collaboration forum to ensure the implementation and follow-up of sustainability as part of daily business operations.

CORPORATE SUSTAINABILITY PRIORITIES	ACCOUNTABILITY OF MATERIAL TOPICS ON THE MANAGEMENT BOARD LEVEL	RESPONSIBILITY BY POSITION
Sustainable products and solutions	• Product sustainability	• Chief Technology Officer
	• Product stewardship	• EVP, Operational Excellence
Responsible operations and supply chain	• Workplace safety	• EVP, Operational Excellence
	• Climate change	
	• Emissions from our own energy production, Scope 1	• Segment Presidents
	• Emissions based on purchased energy, Scope 2	• EVP, Operational Excellence
	• Supplier management	• EVP, Operational Excellence
People and integrity	• Leadership and employee engagement	• EVP, Human Resources
	• Responsible business practices and compliance with Code of Conduct	• Group General Counsel

INTEGRATED MANAGEMENT SYSTEM

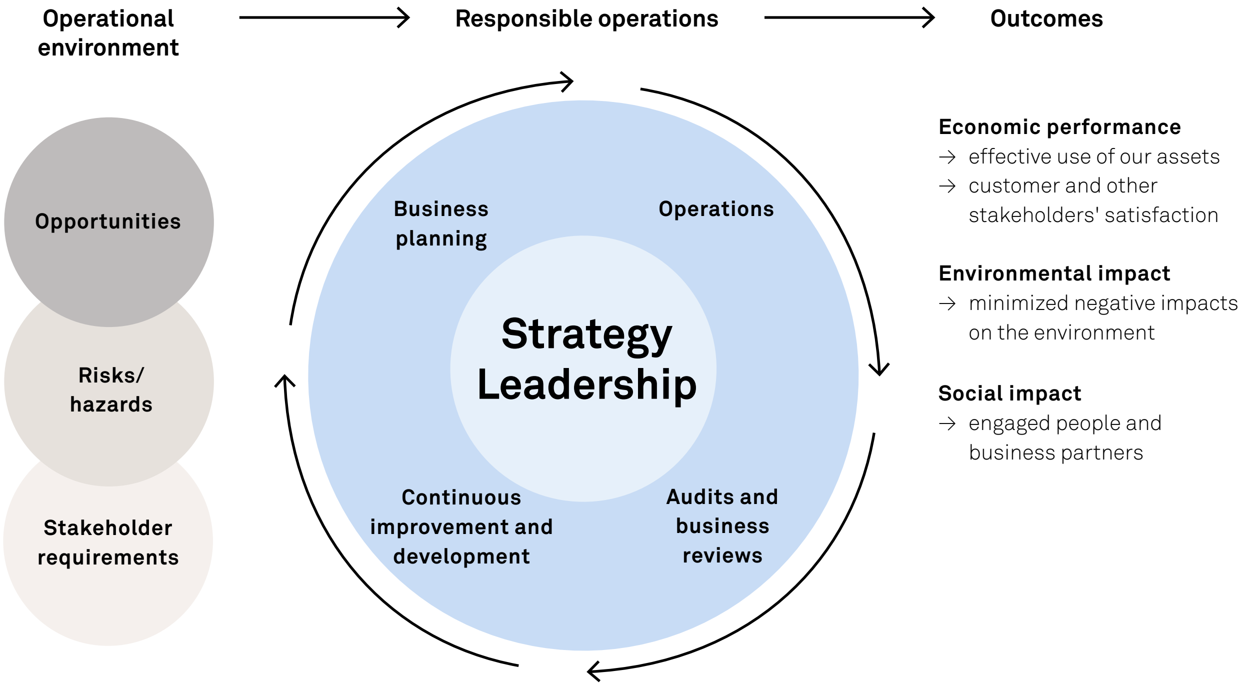
Globally, we aim to bring together all of our operations under the Kemira Integrated Management System. The Kemira management system defines the way our organization is working through the set of policies, standards, procedures and processes. It also defines the requirements and accountabilities at each level of the organization.

Conformance to Integrated Management System and compliance to legal requirements are ensured by regularly monitoring the performance indicators and by conducting internal and external audits and management reviews. The management reviews are performed at all levels of the organization from manufacturing to regional management and the Management Board.

Kemira has a principle that all operations under our Integrated Management System meet the international standards ISO 9001:2015 for Quality, ISO 14001:2015 for Environment, and OHSAS 18001:2007 for Occupational Health and Safety. Our Energy Management System is certified to ISO 50001:2001.

Our Integrated Management System is externally audited through a three-year audit scheme. In 2019, we had 54 (54) internal and external management systems audits, including manufacturing sites, major office locations and R&D centers.

Integrated management system


Operational environment
Responsible operations
Outcomes
Opportunities
Risks/ hazards
Stakeholder requirements
Business planning
Operations
Strategy Leadership
Continuous improvement and development
Audits and business reviews

Economic performance
- → effective use of our assets
- → customer and other stakeholders' satisfaction

Environmental impact
- → minimized negative impacts on the environment

Social impact
- → engaged people and business partners

Number of manufacturing sites certified in 2019

	EMEA	AMERICAS	APAC	Total*
ISO 9001	31	15	6	**52 (85%)**
ISO 14001	31	14	6	**51 (84%)**
OHSAS 18001**	31	15	6	**52 (85%)**
ISO 50001	5			

* Number of sites included in the scope was 63 in 2019. Two manufacturing sites started operations in late 2019 in APAC (one will be certified in 2020 and the other in 2021). One ISO 9001 certified site was closed in 2019.

** One site had its EHSQ Management System certified under ISO 45001:2018 (equivalent of OHSAS 18001).

KEY POLICIES RELATING TO CORPORATE SUSTAINABILITY TOPICS

Our Code of Conduct and respective policies cover all areas of Kemira’s operations and define the framework for our Integrated Management System. Kemira issues and maintains policies to document and communicate Kemira's expectations concerning important internal processes and activities. Our policies create a framework for consistent practices and enforce compliance in our daily operations. All Kemira policies can be found in the document management system, and there is training available if so required for effective implementation. The policy owner ensures that an adequate monitoring system is implemented to monitor the level of compliance with the policy.

CORPORATE SUSTAINABILITY TOPICS	KEY POLICIES	POLICY OWNERS
Sustainable products and solutions	Product stewardship policy	Head of Product Stewardship and Regulatory Affairs
	Trade compliance policy	Head of Product Stewardship and regulatory affairs
	Intellectual Property Rights policy	Chief Technology Officer
Responsible operations and supply chain	EHSQ policy (including Energy policy)	Head of Environment, Health, Safety and Quality
	Sourcing and procurement policy	EVP, Operational Excellence
	Logistics and transportation policy	Head of Global Supply Chain Management
People and integrity	Recruitment policy	EVP, Human Resources
	Global competition law compliance policy	Group General Counsel
	Gifts, entertainment and anti-bribery policy	Group General Counsel

PRODUCT SUSTAINABILITY IN END-USE

MANAGEMENT APPROACH

At Kemira, we use our chemistry to add sustainability into our customers' manufacturing processes and products. Through our chemistry, we play our part to enable the world to move towards more bio-based, recyclable and reusable materials.

Products and solutions addressing the sustainability requirements of our customers are a crucial part of Kemira's long-term strategy and core business. The use of our products and solutions benefits customers by improving the resource efficiency and quality of their products. Our business model is business-to-business.

In 2018, we introduced a KPI to measure the share of revenue from products used to improve use-phase resource efficiency. This KPI provides a crucial linkage to our purpose and strategy and is one factor to steer New Product Development (NPD) project selection.

Products included in the KPI are aimed at material, energy and water efficiency at the customer use phase and are linked to the following types of main applications:

Pulp & Paper

- Pulp processing
- Runnability of paper and board machines
- Process and wastewater management
- Material and fiber efficiency

Industry & Water

- Raw water and wastewater treatment
- Sludge dewatering and sludge to energy (biogas)
- Digital solutions for process optimization
- Oil and gas material flow improvement
- Oil and gas yield improvement

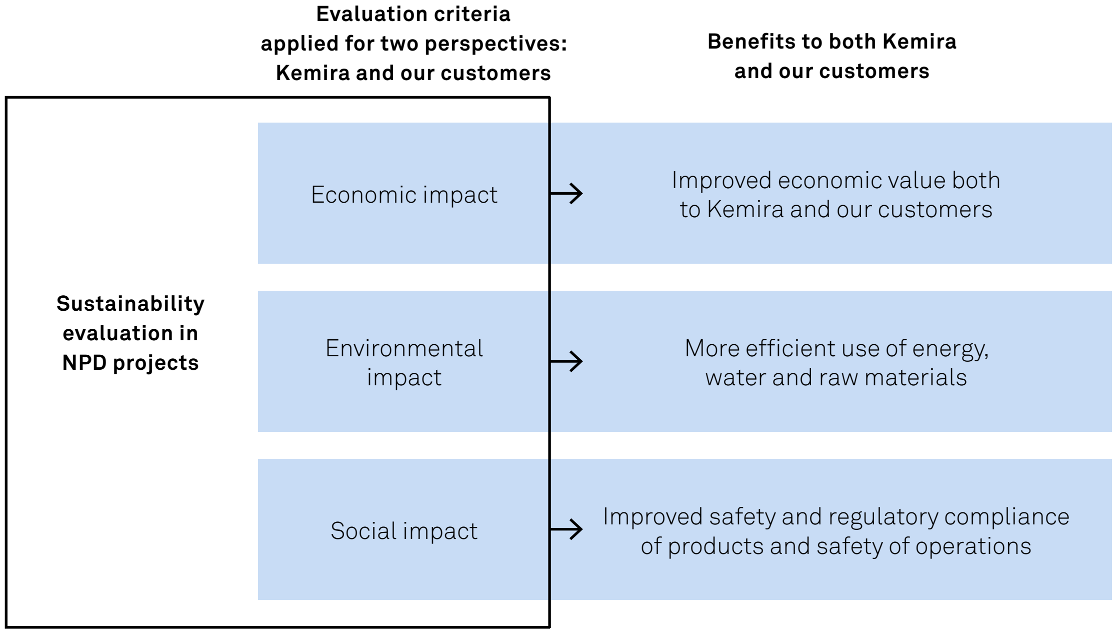
The product categories falling into the scope of the KPI are mainly coagulants, polymers and process chemicals.

Kemira's NPD process follows a stage-gate model. Successful projects must demonstrate both improved sustainability and business benefits at each decision gate to justify the project's continuation, and ultimately the product launch. Our sustainability evaluations examine the economic, environmental and social impact of any new product, both in Kemira's operations and in our customers' operations. The NPD projects also aim to identify and evaluate more sustainable and bio-based alternatives for raw materials, in terms of sources, and use in whole life cycle and safety.

RESULTS AND KEY ACTIVITIES IN 2019

- Product sustainability KPI was approved by the Management Board in June 2018: the share of revenue from products used for use-phase resource efficiency, with a target of at least 50% of our revenue generated by products improving customers' resource efficiency. 2019 result was 53% (51%).
- We started 24 new and finalized 10 NPD projects in 2019. Out of these new projects 15 are planned to increase resource efficiency. Commercialization of five NPD projects started in 2019 and three of them are designed to improve customers' resource efficiency.

Sustainability evaluation throughout the New Product Development projects


Evaluation criteria applied for two perspectives: Kemira and our customers
Benefits to both Kemira and our customers
Sustainability evaluation in NPD projects
Economic impact
Improved economic value both to Kemira and our customers
Environmental impact
More efficient use of energy, water and raw materials
Social impact
Improved safety and regulatory compliance of products and safety of operations

PRODUCT STEWARDSHIP

OUR COMMITMENT

Proactive product stewardship throughout the products' lifecycle. Our management commitment is to ensure the safe production and use of our products throughout their lifecycle.

MATERIAL TOPICS

Customer health and safety, marketing and labeling, socioeconomic (product) compliance.

PRINCIPAL RISKS

Regulatory requirements related to product safety are always evolving. These requirements can both influence and reflect our stakeholders concerns. The outcome of regulatory processes can lead to authorization or restrictions of use which can be a risk to Kemira.

MANAGEMENT APPROACH

Kemira's Product Stewardship Policy defines the minimum requirements for our operations to ensure that our products can be safely used by our stakeholders, and that chemical risks and their impact are incorporated in decision-making relating to our business. Chemical hazard assessments are not only prepared for products but also for raw materials, process aids and intermediates; and are incorporated in change management process during their full lifecycle. Product stewardship is the key pillar in the Responsible Care program. Product Stewardship involves the proactive management of the health, safety and environmental aspects of a product throughout its lifecycle. Our customers have their own health, safety and environmental requirements for their input materials, and they typically follow several voluntary certification schemes, including eco-labeling schemes, which set further expectations on our product offerings. Public discussion and concerns relating to specific chemicals and their hazards also affect our approach to product stewardship and chemical management. Product stewardship provides a platform that helps us to identify risks at an early stage and manage those risks along the value chain to fulfill the expectations of different stakeholders.

Product regulatory compliance

The manufacturing and sale of chemicals are widely regulated around the world. Continuous follow-up of the regulatory development activities is the prerequisite for business compliance and plays a key role in ensuring product safety for customers, value chain and stakeholders.

Product lifecycle management

All of our products, handled raw materials and intermediates need to comply with all applicable chemical regulatory requirements in the countries where we manufacture and/or sell chemicals. Assessments examining regulatory compliance, human health impact, safety issues and environmental protection aspects all form part of our Product Lifecycle Management process from conception and development to manufacturing and sales, and finally to product elimination. All data related to chemical products and substances including raw materials is managed in Enterprise Resource Planning system and is linked to Product Lifecycle Management tool/process.

Priority substance management

We actively track our portfolio for priority substances that are subject to future regulatory restrictions or associated with particular concerns, and prepare management plans for these substances. Our priority substance management plan aims to define the specific risks associated with each substance, examine options for managing these specific risks, and formulate action plans for the preferred options. These options to mitigate risks may include, for example, substitution, phase-out or limiting exposure.

Commitment to animal welfare and sustainable palm oil supply

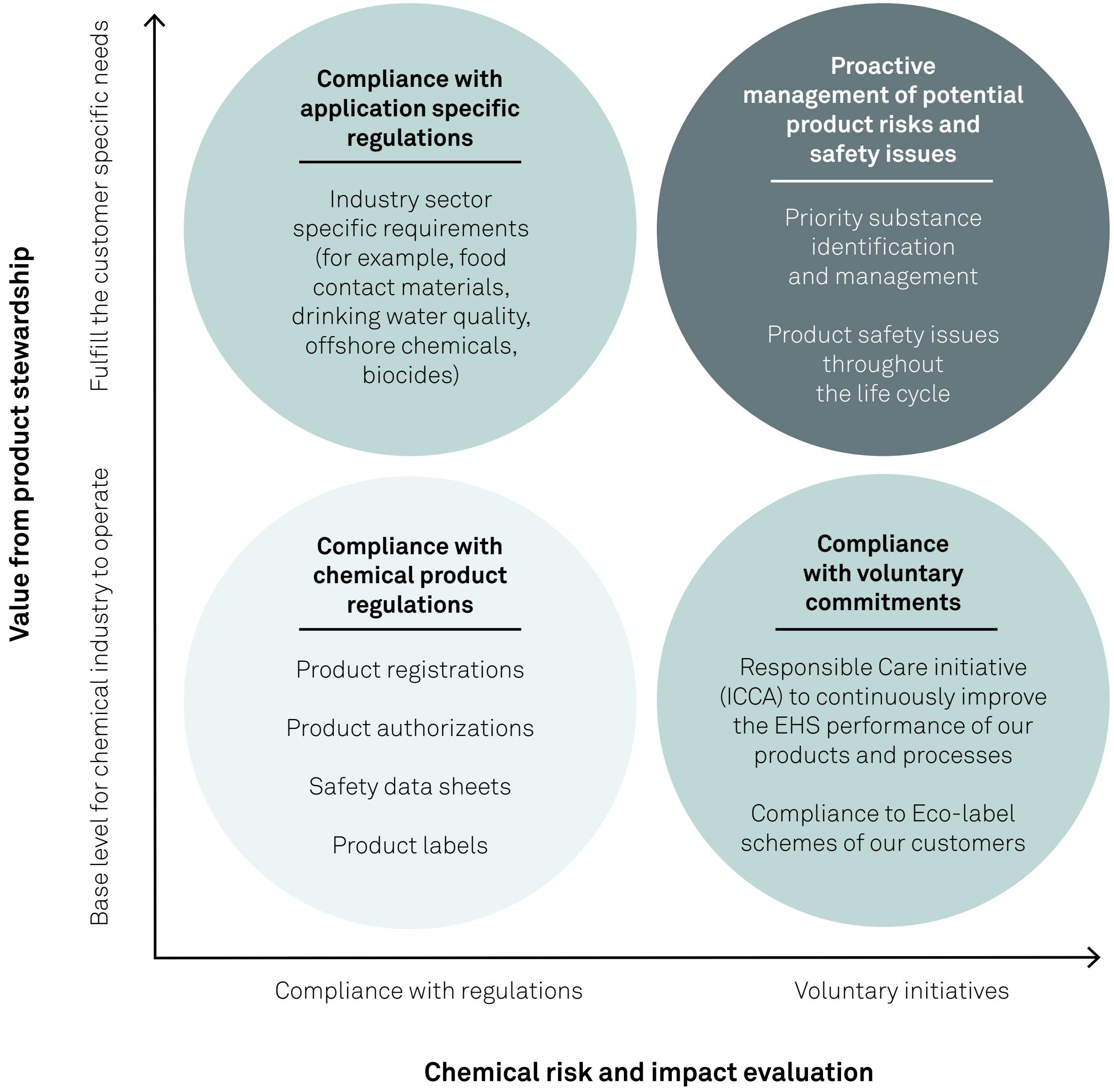
Kemira is committed to reducing, refining and replacing animal testing wherever possible. Kemira does not itself perform any animal experimentation in-house. All animal testing commissioned by Kemira is done to the highest of animal welfare standards following national and international legislation on the protection of animals and only if specifically required by legislation or for product safety purposes.

When using palm oil derivatives, Kemira screens and relies on suppliers who have shown commitment to the Roundtable on Sustainable Palm Oil (RSPO) supply chain standard for sustainable palm oil. However, RSPO certified palm oil currently has limited availability and Kemira is also forced to use palm oil derivatives without certification.

KEY ACTIVITIES IN 2019

- Kemira has signed up to Cefic's (European Chemical Industry Council) Action Plan to re-evaluate our chemicals safety data following the launch of the voluntary industry-wide initiative on REACH registration dossiers in June 2019.
- Kemira completed Korean REACH (K-REACH) pre-registrations of the existing substances based on our business needs by the deadline on June 30, 2019.
- Kemira complied with the U.S. EPA requirement for chemical manufacturers and processors to report active chemicals under the Toxic Substances Control Act (TSCA) Inventory Reset Rule.
- Our Product Lifecycle Management (PLM) system was upgraded to integrate both raw material, manufacturing and product master data, documents and basic product management as a central information hub to facilitate communication and collaboration throughout the product lifecycle.

Product stewardship management approach



Value from product stewardship

Fulfill the customer specific needs

Base level for chemical industry to operate

Compliance with application specific regulations

Industry sector specific requirements (for example, food contact materials, drinking water quality, offshore chemicals, biocides)

Proactive management of potential product risks and safety issues

Priority substance identification and management

Product safety issues throughout the life cycle

Compliance with chemical product regulations

Product registrations

Product authorizations

Safety data sheets

Product labels

Compliance with voluntary commitments

Responsible Care initiative (ICCA) to continuously improve the EHS performance of our products and processes

Compliance to Eco-label schemes of our customers

Compliance with regulations

Voluntary initiatives

Chemical risk and impact evaluation

WORKPLACE SAFETY

MANAGEMENT APPROACH

High-performing Environmental, Health, Safety and Quality (EHSQ) management is fundamental to our business. Our daily EHSQ work is guided by regulations and statutory requirements, by our EHSQ policy, by respective standards and operating practices. Our operations are managed to also meet the expectations of our stakeholders in our operating environment. The way to reach these goals is through continuous improvement in our EHSQ management, managing hazards pro-actively and engaging with our employees, contractors and business partners.

All aspects of safety management are fundamental to our operations: people safety, process safety, chemical safety and transportation safety. Incidents in our operations can have consequences for our people as well as to those third parties that are working for us at Kemira sites or at a location where Kemira is present.

Our long-term vision for safety is “Zero harm for people”. We believe all incidents are preventable. Our target is to be world class in workplace safety. We measure our safety performance with Total Recordable Injury Frequency per million hours (TRIF) covering Kemira employees and contractors. We have set a new TRIF target beyond 2020 of ≤1.5 for 2025.

RESULTS AND KEY ACTIVITIES IN 2019

In 2019, our safety performance was TRIF= 2.1 (3.5), a result that was significant improvement over 2018. We continued our work towards improving health and safety culture to prevent incidents and mitigating health and safety hazards.

We have now achieved a TRIF level from which further development is highly dependent on the safety behavior of people.

- The Behavior Based Safety program (BBS) was initiated in 2016 and continued in 2019. The program now covers all manufacturing sites. The overall aim of this program is to improve safety performance by focusing on the behavior of people. Our safety development now needs a strong focus on behavior-based safety, and people's hearts and minds to work successfully.
- This year a global program to ensure the comprehensive assessment of employee work-related exposures was initiated. Although our manufacturing locations already had programs for the management of occupational exposures, a global program was needed to improve consistency across all Kemira. This program included the Assessing and Managing Occupational Exposures Standard, which requires not only regulatory compliance but also is based on industry best practice. Implementation will continue into 2020.
- In order to protect external stakeholders at our manufacturing locations, we continued an aggressive training program to inform visitors, contractors and truck drivers of the potential hazards and safety requirements of our plants. This took the form of e-learning training modules with detailed manufacturing location-specific safety information. These modules allow visitors to complete the training prior to arrival on-site, thus able to be fully engaged and focused on their task while on-site. These e-learnings were implemented in some regions in 2019 and will be fully implemented globally in 2020.
- We completed the "Life Saving Rules" campaign this year. These rules were derived from analysis of 20 years of industry data. This important campaign was undertaken for several reasons, including; an increase in individual awareness of ownership of critical safeguards, improvement in clarity and consistency by contractors and operators, and finally a better transfer of knowledge, experience and lessons learned.
- In 2019, TRIF was a bonus KPI for all Kemira employees. Additionally, most employees' personal KPIs included leading safety indicators such as Hazardous Conditions, Hazardous Activities and BBS reporting.

For more information, see GRI 403-2 on page 55.

CLIMATE CHANGE

MANAGEMENT APPROACH

Kemira is committed to climate action and has introduced a new target to reduce combined Scope 1 and Scope 2 emissions by 30% by 2030, from a 2018 baseline of 930,000 tons CO_2eq. Our long-term ambition is to be carbon neutral by 2045 for combined Scope 1 and Scope 2 emissions.

For our Scope 3 emissions, we are committed to working with suppliers to decrease the carbon footprint of our purchased goods and services. We also encourage suppliers to set ambitious greenhouse gas (GHG) reduction targets aligned with the Paris Agreement.

Kemira fully supports the ambition of the UNFCCC Paris Agreement, and stresses the importance of collaboration across sectors and stakeholders to ensure the implementation of solutions.

The key near-term measures to reduce our emissions include:

- Purchasing zero-emission electricity and steam.
- Shifting our use of fuels towards less carbon-intensive energy sources.
- Improving energy efficiency at our manufacturing sites.

Longer-term solutions include electrification of our processes and offsetting of any residual emissions.

RESULTS AND KEY ACTIVITIES 2019

- Sodium chlorate manufacturing sites in Finland and the United States are the largest consumers of electricity. Finland accounted for 46% (46% in 2018) and United States 32% (33%) of Kemira's total purchased electricity in 2019. Electricity price risk is mitigated through strategic ownership of energy-generating companies, and by hedging a portion of our energy and electricity spend. In Finland, Kemira owns shares in the Finnish energy companies Pohjolan Voima Oyj (PVO) and Teollisuuden Voima Oyj (TVO), and the rest of the electricity is purchased from the Spot-market. In other countries, energy is purchased from local suppliers, taking into account the type of energy source.
- The share of carbon-free sources counted for approximately 64% of total fuel. During 2019, Kemira received Guarantee of Origin certificates for 68,293 MWh (90,706 MWh 2018) of electricity purchased from hydropower suppliers in Finland. All the certificates granted to Kemira were canceled (i.e. made non-tradable, with their benefits exclusively redeemed by Kemira).
- The continuous E3plus energy efficiency improvement program continued and energy savings (23.3 GWh/a) were achieved.

SUPPLIER MANAGEMENT

DESCRIPTION OF OUR SUPPLY CHAIN

Our Sourcing function is globally responsible for strategic spend management, while our Supply Chain Management function provides supply chain related services on a regional level to our business segments.

- Our Sourcing activities cover the identification and selection of suppliers, the consequent negotiations and contract management, and the management of supplier relationships. Our supplier selection criteria are based on cost competitiveness, short-term operational excellence, long-term business stability as well as sustainability performance.
- Our Supply Chain Management activities cover all supply chain related services to our business segments once the supplier relationship has been established by our Sourcing function. Supply Chain Management services include Customer Service, Logistics, Supply Chain Planning, and Procurement. The Supply Chain Management function has regional units that each provide all the services needed within their respective regions.
- The total spend of the Sourcing categories "direct materials" and "indirect goods and services", amounted to about EUR 2.0 billion in 2019. The direct materials cover all raw materials, packaging and energy while indirect goods and services include all non-raw material related spending, for example, on equipment, services, and logistics.
- We have approximately 14,800 suppliers consisting of 1,700 direct material suppliers and 13,100 indirect suppliers. Despite the large number of suppliers, approximately 10% of all suppliers account for around 90% of the total spend. Geographically, approximately half of our suppliers reside in Europe.

MANAGEMENT APPROACH

Supplier management and supplier risk and compliance management are cornerstones of our sustainable sourcing roadmap that ensure responsibility in our supply chain. Our Supplier Management focus is on improving economic performance, anticipating risk and initiating approaches with suppliers that are responsible and innovative. It is described in three main processes: Supplier Segmentation, Supplier Performance Evaluations (SPE) and Vendor Value Program.

- Our suppliers are segmented into four categories: strategic, critical, volume and base suppliers, and prioritized based on multi-factor risk criteria to help us better manage our suppliers and plan actions for necessary risk mitigation.
- The SPE program collects and provides regular feedback to our suppliers both on their operational and sustainability performance. The majority of our strategic, critical and volume suppliers are part of regular supplier reviews.
- Our Vendor Value Program is aimed at developing capabilities that will enable us to identify, partner with, and manage those suppliers, along the various value chains associated with Kemira's product lines.

Our **supplier risk and compliance** management defines the requirements for suppliers to do business with Kemira, as well as provides tools and processes for mitigating the sustainability risk with our suppliers (sustainability assessments and audits).

Code of Conduct for Business Partners (CoC-BP)

All of our suppliers must follow our Code of Conduct in relation to all of their dealings with Kemira. Our Code of Conduct is communicated to all suppliers through the ordering process as part of Kemira terms and conditions.

- Supplier adherence to these principles is controlled in different stages of our Sourcing processes starting from the new supplier screening/new vendor creation process, to contracting where the commitment to our CoC-BP is integrated in the contract templates. Finally, we have

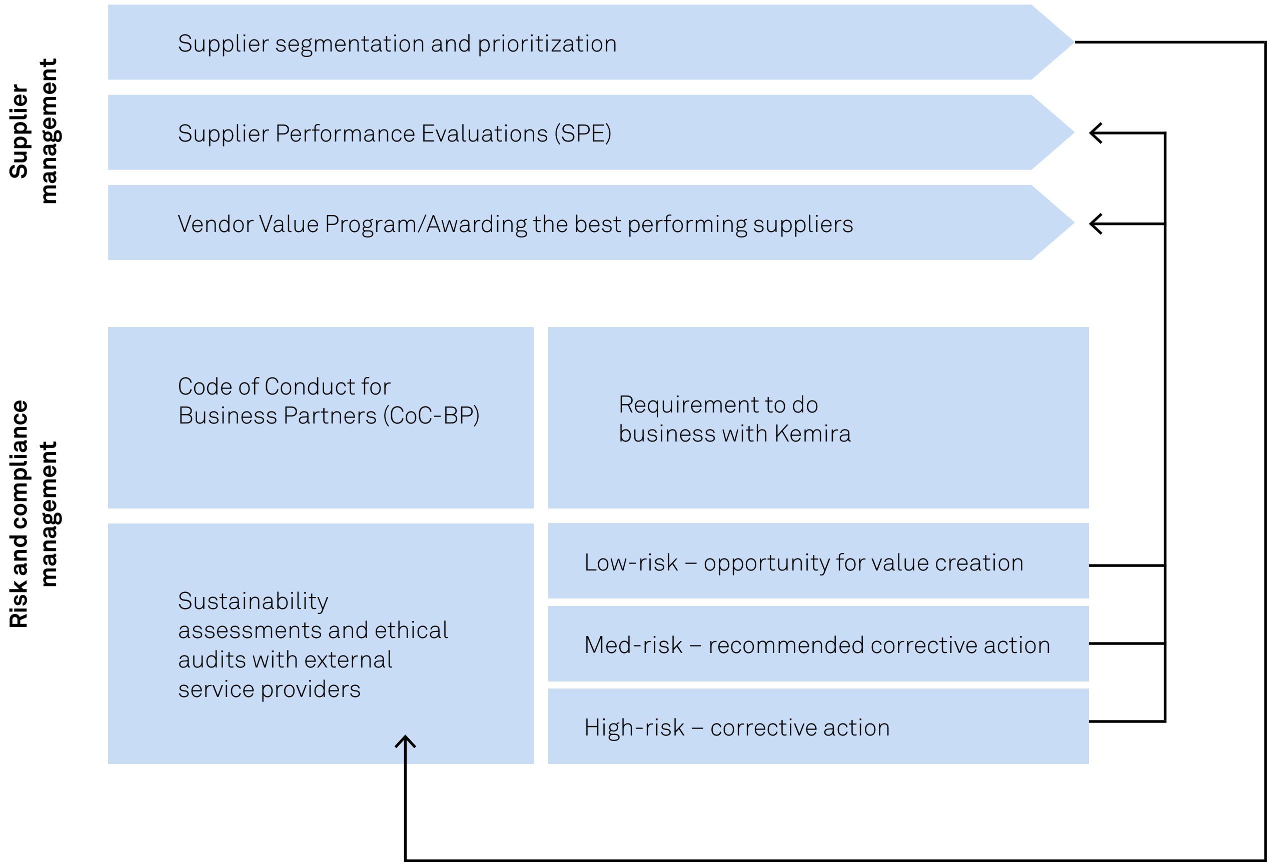
STRUCTURE OF KEMIRA'S SUPPLIER BASE	DIRECT MATERIALS	INDIRECT GOODS AND SERVICES
Number of suppliers, approximately	**1,700**	**13,100**
EMEA	800	7,200
Americas	600	4,200
APAC	300	1,700
Number of suppliers that form 80% of the category spend	**10%**	**8%**

continuous monitoring in place for those contracts exceeding certain spend thresholds to make sure we are reasonably covered (GRI 308-1: Supplier Environmental assessment; GRI 414-1: Supplier social assessment).

Supplier sustainability assessments and audits

- We use Supplier Assessments and Audits to evaluate and understand better how well our suppliers are acting in a way that is consistent with our principles and values (i.e. CoC-BP).
- The assessment platform is provided by an external third-party company which is specialized in standardized supplier sustainability evaluation based on the international sustainability standards of the Global Reporting Initiative, United Nations Global Compact, and ISO 26000.
- Supplier Corporate Social Responsibility audits are conducted by an external auditor as an on-site audit. The audit protocol covers labor standards, health and safety, environment, and business ethics criteria. The auditors summarize their findings in a detailed report which also contains a corrective action plan which is then reviewed and followed-up with the supplier as needed, and depending on the case.
- The assessment and audit results also feed into our SPE program and depending on the results, have different consequences. If audits or assessments indicate a high risk and room for improvement, this is also discussed with the supplier when we provide feedback on the general SPE result.

Supplier and supplier risk and compliance management


Supplier management
Supplier segmentation and prioritization
Supplier Performance Evaluations (SPE)
Vendor Value Program/Awarding the best performing suppliers
Risk and compliance management
Code of Conduct for Business Partners (CoC-BP)
Requirement to do business with Kemira
Sustainability assessments and ethical audits with external service providers
Low-risk – opportunity for value creation
Med-risk – recommended corrective action
High-risk – corrective action

RESULTS AND KEY ACTIVITIES IN 2019

- Sustainability assessments: We continued enrolling new suppliers into our Sustainability program. A total of 220 (167) suppliers have now gone through the assessment and have recorded an average score of 54, which is higher than industry average on assessed average on the platform. Results with low scores were reviewed together with suppliers and improvement plans were made accordingly. In most cases, low scores were due to lack of supporting documentation provided by the vendor to the assessment company. Around 61% of the 171 reassessed suppliers were able to improve their score.
- In 2019, we conducted five Coporate Social Responsibility audits with no business stopping results. Audit results were reviewed together with supplier and improvement plans created and followed up accordingly as part of our supplier management practices. Most common corrective actions were related to working hours and wages as well as improving the safety at supplier's site.
- Both Supplier assessments and audits are part of sourcing processes and Sourcing function target setting and are monitored on monthly basis. On total level all related KPIs were met in 2019.
- In 2019, as part of our Vendor Value Program we collected 64 value proposals from our suppliers. Majority of the value proposals were around improving supplier product offering either though better performance, cost or sustainability, improving the operations in the supply chain or sharing market intelligence. Value Proposals, in liaison with operational performance and contractual commitment, is one of the key criteria determining which suppliers to award. Currently we are in progress of selecting the third annual round of suppliers to award during Q1 of 2020.
- Quality audits: Large spend suppliers also undergo quality audits, which include management systems, workplace health and safety standards, production quality and supply security. In 2019, 28 quality audits were conducted.

ENGAGEMENT AND LEADERSHIP

MANAGEMENT APPROACH

Our values and the principles of our Code of Conduct are the foundation for creating a strong company culture and commitment to people. We aim to offer employees the right mix of opportunities and challenges in a global and diverse working environment. Our result-oriented and collaborative culture empowers employees to solve the challenges of tomorrow. Together, we can have a major impact on our future. Our offering to employees includes working with a company with the purpose of improving water quality and commitment to sustainability, talent management, leadership development, performance management and competence development, reward and recognition, and safety and well-being.

RESULTS AND KEY ACTIVITIES IN 2019

Engagement: Moving to continuous employee feed-back and listening model

During 2019, we initiated our continuous feedback and listening model for prioritized areas. Because we have adopted these new methods for the first time in 2019, we cannot directly compare engagement scores, trends or participation rates from Voices@Kemira 2018 to MyVoice 2019. Glint is our new supplier with a track record in this field of expertise and will work with us as we transition to new agile methods of engagement measurement, benchmarking and taking action. We will continue to embed this as a way of working for managers and employees. In 2019 we piloted the model for prioritized scope including for competence development for commercial teams, EHSQ lifesaving rules for Manufacturing and Sales, and onboarding new hires. In November 2019, we completed a MyVoice short survey on strategy awareness and engagement. Engagement score was 79, which is 6 points above the external manufacturing benchmark. This score puts Kemira in the top 20% of Glint customers globally across all industries and it is the first time Kemira has reached this percentile. The participation rate was 67% with 3,354 responses.

The Voices@Kemira 2018, our previous biennial employee engagement survey, was conducted in April 2018. Employee Engagement was 71% (target 69%), and 4% higher than in the previous survey in 2015. Strategy and Change was agreed to be the company-wide area for action planning and extensive communications have been completed as part of the refreshed strategy communication.

Talent management and leadership development

Our Talent Management culture is well in place, with both the systematic processes and leadership capabilities to identify and develop employees with potential for leadership positions globally. We continued to build a strong leadership bench to meet our business needs in relation to executing our strategy and driving our long-term growth. We rolled out a new program for identified non-executive leadership talents to fast-track their development and increase their exposure to senior leaders. We are working to ensure that strong development plans are in place for talents and for key position successors. Leadership development plans included on-the-job learning, learning from others, as well as formal program. Our leadership development target 2016–2020 is 1,500 activities, that is on average at least two leadership development activities per people manager. By the end of 2019, we were at 1,839 activities and ahead of the target.

Performance management and competence development

Kemira's performance management process aligns our strategic targets with each employee's personal targets, competencies and development plans. This process is well-established within Kemira as part of our leadership culture, and it forms the backbone of our management system.

To ensure the process also meets future needs the process was redesigned during 2019 utilizing design thinking principles and tools. The process was further developed engaging with several hundreds of employees and managers across Kemira. The renewed process was successfully launched in the beginning of 2020.

INTEGRITY

MANAGEMENT APPROACH

Our values and Code of Conduct

Our management approach to integrity and responsible business practices is based on our corporate values and our Code of Conduct. These principles demonstrate our commitment to conduct our business in compliance with all applicable laws and regulations, and according to ethical standards.

Our Code of Conduct sets the minimum standards of expected behavior for our employees and business partners. Our internal policies and procedures provide more detailed guidance to steer our daily work and decision-making. Kemira's Code of Conduct was reviewed, updated and approved by the Board of Directors in 2017, followed by an extensive global training and communication campaign during 2017 and 2018. Every employee is expected to comply with Kemira's Code of Conduct. All people managers and leaders are responsible for implementing the Code within their teams. Since 2013, we have required all of our employees to regularly complete the Code of Conduct training, which is currently available in 21 languages. We also train selected employee groups on more specific compliance matters, such as anti-bribery, competition compliance and insider information.

We expect our business partners to follow our Code of Conduct for Business Partners (CoC-BP) in their business activities. Both of these Code of Conduct documents, as well as our corporate values can be found at **www.kemira.com**.

Our Ethics and Compliance Program

Our Ethics and Compliance Program aims to enhance compliance management at Kemira on a continuous basis. The program addresses all of the following measures taken to manage ethics and compliance risks:

- **Prevention:** measures that help us proactively prevent ethics and compliance risks from materializing
- **Detection:** measures that help us detect where ethics and compliance risks have materialized or may arise
- **Responding:** measures that help us investigate and respond to potential ethics and compliance breaches

Organizational structure for ethics and compliance

- Our **Ethics and Compliance** function is responsible for overseeing the effective implementation of Kemira's Ethics and Compliance program. The status of the program is also reported directly to the Audit Committee on a regular basis.
- **The Compliance Committee** oversees the management of compliance allegations to ensure fair and sufficient investigation, remediation and consistent disciplinary action across our organization. The committee consists of Group General Counsel, EVP Human Resources, Head of Internal Audit, and Director, Ethics and Compliance.
- Our **Local Ethics and Compliance Officer Network** consists of employees across the organization based in different regions, who support our regional ethics and compliance communication, activities and overall awareness as part of their work.

Mechanisms for seeking ethics advice and reporting concerns

We promote a culture that encourages our employees to speak freely. We actively encourage our employees to contact their managers, local HR, Legal or Ethics and Compliance function to express their concerns and ask questions.

All of our employees also have access to an externally hosted Ethics and Compliance hotline, which is a 24/7 service enabling them to report potential violations of our Code of Conduct or other ethical concerns. All employees can anonymously submit such reports in their own languages, by phone or through a web form, which can be accessed through Kemira's intranet, wherever such channels are not restricted by local legislation. Information about the availability of the Ethics and Compliance hotline is shared to all employees on Kemira's intranet. We provide regular training and communications to our employees on all of our available channels to report concerns and to assure the anonymity of the report. The hotline system and the process of handling the reports are managed by the Ethics and Compliance function.

The email address compliance(at)kemira.com can be used by third parties to report cases of potential misconduct relating to Kemira or our business partners. This information is available on our website and in the Kemira Code of Conduct for Business Partners.

All allegations of potential violations of our Code of Conduct made in good faith will receive a fair and comprehensive investigation utilizing internal and/or external assistance. Any reporting of potential Code violations are treated as strictly confidential and anonymous to the fullest extent possible.

RESULTS AND KEY ACTIVITIES IN 2019

- Integrity is high at 87% for 2018, this is 10% above the external industry norm. Integrity will be measured using a MyVoice survey in 2020.
- The CoC-BP was reviewed and updated during 2019 and it is now alligned with and reflecting the main principles of Kemira's Code of Conduct.
- 17 concerns or allegations of potential Code of Conduct violations were reported via the Ethics and Compliance hotline, or via other channels, such as direct reporting to the Ethics and Compliance function, local HR or to the Internal Audit. A total of 10 cases were closed with merit.

CONCERNS OF ALLEGATIONS OF POTENTIAL CODE OF CONDUCT VIOLATIONS REPORTED IN 2019	NUMBER OF CASES	CASES CLOSED WITH MERIT	CASES CLOSED WITHOUT MERIT	OPEN CASES AS OF DEC 31, 2019
Cases reported via hotline	3	1	2	0
Cases reported via other channels	14	9	5	0
Total number of cases	**17**	**10**	**7**	**0**

CASES CLOSED WITH MERIT BY ISSUE CATEGORY	NUMBER OF CASES
Corruption and bribery	0
Conflict of Interest	1
Employee relations and fair treatment	5
Harassment	1
Transactions and company records	3
GRAND TOTAL	**10**

Our performance indicators

ECONOMIC

ECONOMIC PERFORMANCE

GRI 201-1: Direct economic value generated and distributed

Kemira generates economic value from expertise, products and sustainable solutions, enabling our customers to improve their water, energy and raw material efficiency. Kemira distributes the generated economic value to various stakeholders. This includes suppliers and service providers through payments for raw materials and services, employees through compensation and benefits, capital providers through dividends and interest payments, public sector through taxes, and society through local community projects, sponsorship and donations. Taxes have a significant impact on our businesses, financing and growth opportunities. Kemira's approach to tax is to support responsible business performance in a sustainable way. A separate tax footprint report is available at **www.kemira.com** > Company > Investors.

The economic value retained is reinvested in the company for capital investments, R&D and technology development. The economic value retained increased to EUR 299 million in 2019 (123 in 2018).

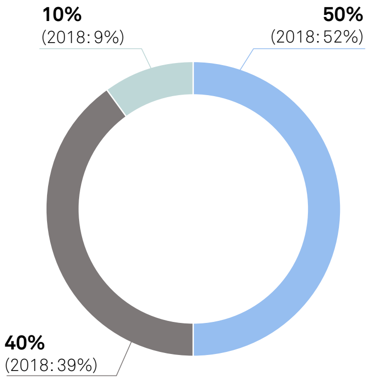
Economic value, cash flow based

STAKEHOLDER	ECONOMIC VALUE EUR million	2019	2018	2017	2016	2015
Direct economic value generated: Revenues						
Customers	Income from customers on the basis of products and services sold, and financial income	2,687	2,614	2,453	2,386	2,350
Direct economic value distributed						
Suppliers	Payments to suppliers of raw materials, goods and services	1,861	2,001	1,831	1,701	1,709
Employees	Employee wages and benefits	366	352	362	364	356
Investors & lenders	Dividends, interests paid and financial expenses	122	114	117	114	113
Government & Public sector	Corporate income taxes	39	24	25	23	12
Economic value retained		**299**	**123**	**118**	**184**	**160**

Community investments were EUR 0,1 million in 2018 through sponsoring and local community participation

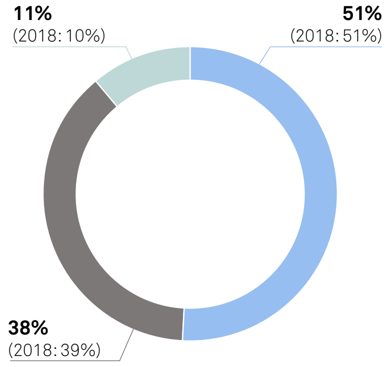
Economic value distributed by region

REVENUE BY CUSTOMER LOCATION %



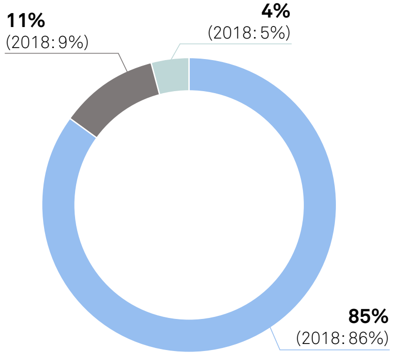
PAYMENTS TO SUPPLIERS OF RAW MATERIALS, GOODS AND SERVICES

by region %



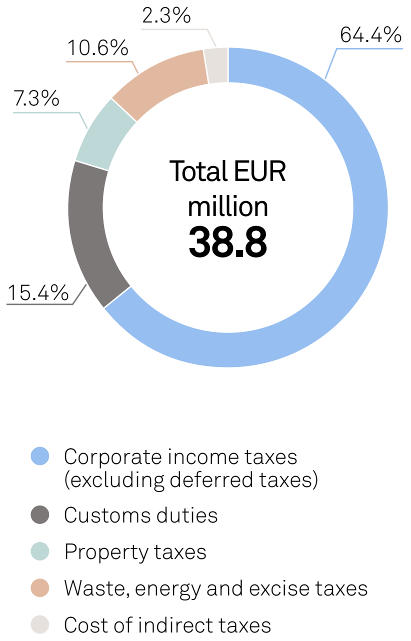
CORPORATE INCOME TAXES

by region %



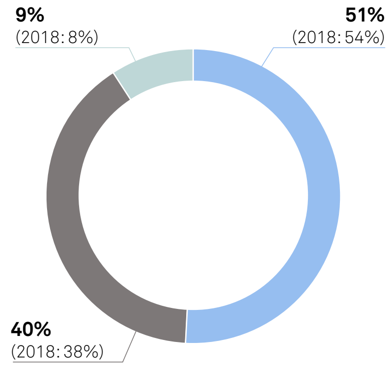
ESTIMATED TAXES BORNE 2019

EUR million and %



EMPLOYEE WAGES AND BENEFITS

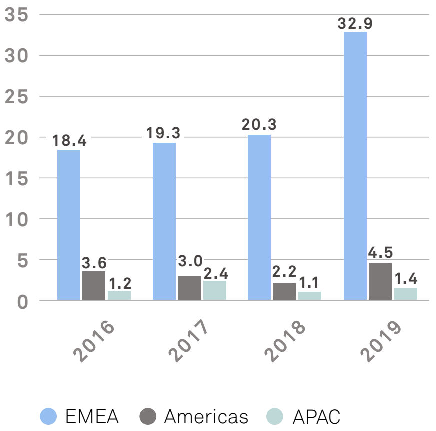
by region %



- ● EMEA
- ● Americas
- ● APAC

CORPORATE INCOME TAXES

EUR million



ANTI-CORRUPTION

GRI 205-1: Operations assessed for risks related to corruption

Kemira conducted a global ethics and compliance risk assessment in 2016, covering key business operations and functions in all regions. Anti-corruption was one of the key focus areas in the assessment and the results of the assessments were utilized in Kemira's ethics and compliance and internal audit plans for the following years. No significant risks related to corruption were identified through ethics and compliance activities or internal audits in 2019.

GRI 205-2: Communication and training about anti-corruption policies and procedures

Kemira's principles for anti-corruption are included in the Kemira Code of Conduct and in the Kemira Group Gifts, Entertainment and Anti-bribery Policy. Both documents are available to all employees on Kemira's intranet, and the Code of Conduct is also publicly available at **www.kemira.com**.

Kemira's Code of Conduct has been approved by the Board of Directors, and as part of our mandatory and regular Code of Conduct training our anti-corruption principles are communicated to all of our employee groups and regions on a regular basis. All members of Kemira's Board of Directors have been trained on our anti-corruption principles.

Kemira provides mandatory anti-bribery training to its white collar employees, who need to have a comprehensive understanding of Kemira's anti-corruption principles. The table below demonstrates the scope of the training, with a breakdown by employee category and regions.

We expect our suppliers and other business partners to conduct their business with integrity and commit to Kemira's Code of Conduct for the Business Partners (CoC-BP) in their business activities with Kemira. According to the CoC-BP, Kemira expects our Business Partners to ensure that they, and third parties acting on their behalf, do not offer, give or accept improper or corrupt payments, and that they will not engage in any form of bribery. We aim to communicate the CoC-BP to all of our suppliers, agents and distributors. All of our suppliers (engaged with a SAP Purchased Order) receive a written reference to Kemira's CoC-BP as part of the Kemira general terms of purchase on the back of the Purchase Order.

		NUMBER OF PERMANENT EMPLOYEES, NOT ABSENT	NUMBER OF EMPLOYEES RECEIVED TRAINING ON ANTI-CORRUPTION	% OF EMPLOYEES RECEIVED TRAINING ON ANTI-CORRUPTION
Americas	White collars	891	856	96
	Blue collars	674	0	
APAC	White collars	466	450	97
	Blue collars	481	0	
EMEA	White collars	1571	1507	96
	Blue collars	903	0	
TOTAL		**4986**	**2813**	**56**

GRI 205-2: Total number and percentage of suppliers that the organizations anti-corruption policy has been communicated to

REGION	TOTAL NUMBER OF SUPPLIERS*	TOTAL NUMBER SUPPLIERS* THAT OUR ANTI-CORRUPTION PRINCIPLES HAVE BEEN COMMUNICATED TO	PERCENTAGE OF SUPPLIERS* THAT OUR ANTI-CORRUPTION PRINCIPLES HAVE BEEN COMMUNICATED TO
EMEA	7959	7959	100
Americas	4833	4833	100
APAC	1968	1968	100
TOTAL	**14760**	**14760**	**100**

* The numbers include suppliers engaged with a SAP Purchase Order. In addition to SAP transactions, some small purchases are processed via the travel claim process.

GRI 205-3: Confirmed incidents of corruption and actions taken

There were no confirmed incidents of corruption or public legal cases regarding corruption in 2019.

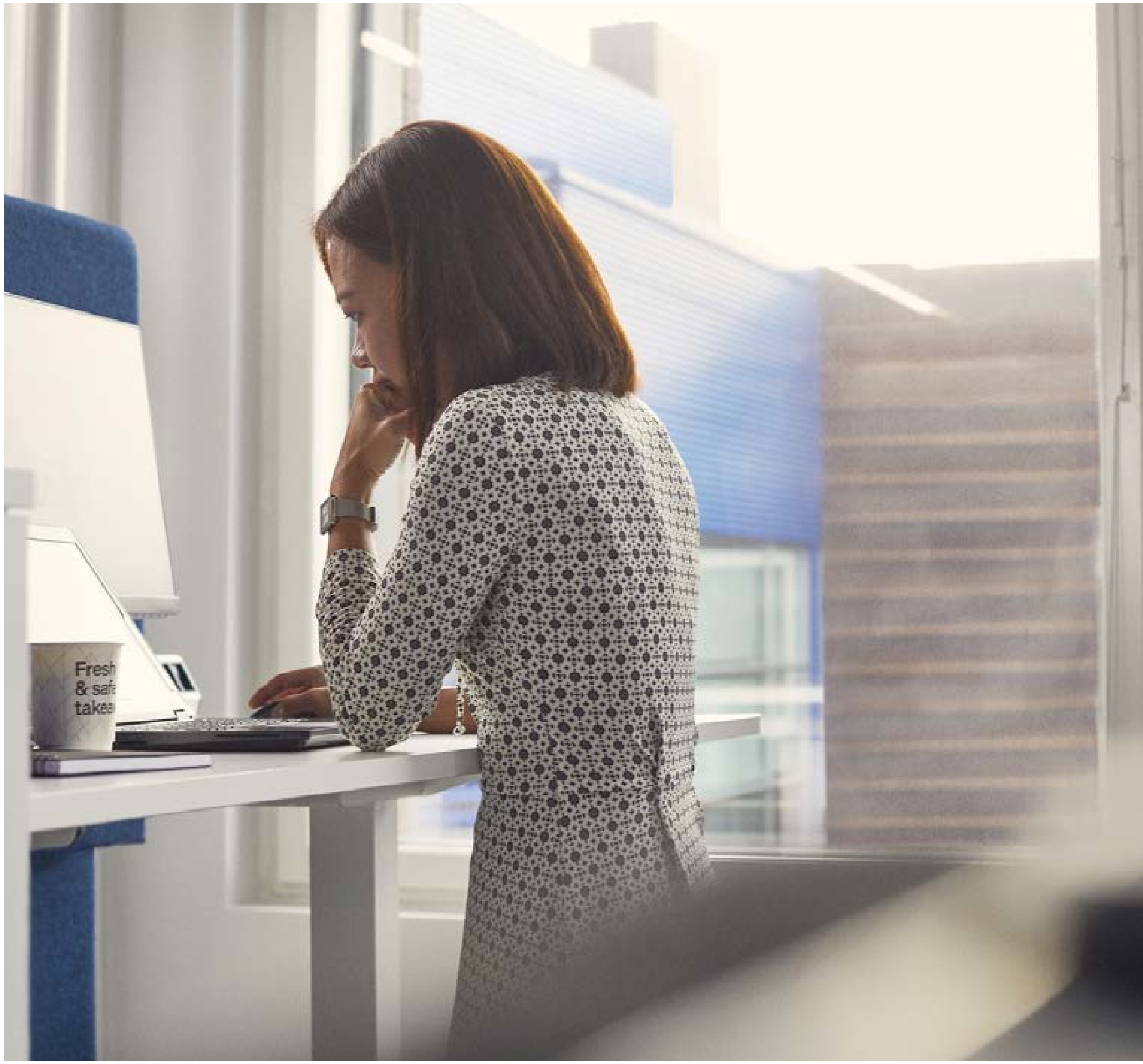
ANTI-COMPETITIVE BEHAVIOR

GRI 206-1: Legal actions for anti-competitive behavior, anti-trust, and monopoly practices

In 2019, Kemira had the following pending or completed legal actions initiated under national or international laws designed for regulating anti-competitive behavior, anti-trust, or monopoly practices:

Kemira continued to defend itself against a legal action filed by CDC PROJECT 13 SA against Kemira Chemicals Oy (former Finnish Chemicals Oy) in Amsterdam, the Netherlands, related to an alleged historical infringement of competition law in the sodium chlorate business by Finnish Chemicals Oy between 1994 and 2000. Kemira acquired Finnish Chemicals in 2005.

In the United States, Kemira was involved in two class action lawsuits and 10 individual suits which had been filed during 2015–2018 based on alleged violations of anti-trust laws relating to the sale of certain water treatment chemicals between the years 1997 and 2011. In those lawsuits, Kemira had been named as a defendant among other defendants. The individual legal suits were opt-out suits, whereby the plaintiffs opted out of the class actions. According to Kemira’s assessment, all of these class actions and individual lawsuits against Kemira lacked merit. Kemira settled all these class actions and opt-out suits during 2019.



ENVIRONMENTAL

MATERIALS

GRI 301-1: Materials used by weight or volume

GRI 301-2: Recycled input materials used

The renewable materials used include mainly starches, tall oil, and fatty acid derivatives.

The recycled input materials are industrial by-products and recycled materials from external partners. These materials include mainly inorganic materials such as scrap iron, ferrous sulphate and spent pickling liquor bath. Industrial by-products are mainly from smelters, as well as steel and metal manufacturing. Inorganic byproducts and recycled materials are mainly used in the production of inorganic coagulants, which are used in water treatment, and in which category recycled input material may account for up to 70–80% of all raw materials used. In 2019, approximately 24% (21% in 2018) of raw materials across all Kemira business segments were recycled input materials. In 2018 and 2017, the use of recycled input materials reduced due to the fire at a major supplier in Finland, causing significant drop in ferrous sulphate supplies.

MATERIALS million tonnes	**GRI disclosure**	**2019**	**2018**	**2017***	**2016**	**2015**
TOTAL MATERIALS USED	**301-1**	**3,342**	**3,329**	**3,510**	**3,536**	**3,293**
Non-renewable materials	301-1	3,284	3,268	3,448	3,458	3,220
Renewable materials	301-1	0,058	0,061	0,062	0,078	0,072
Share of renewable materials, %	301-1	1.7%	1.8%	1.8%	2.2%	2.2%
Recycled input materials used Industrial by-products and recycled material from external partners	301-2	0,804	0,710	0,799	0,945	0,904
Share of recycled materials, %	301-2	24.1%	21.3%	22.8%	26.7%	27.5%

* Data corrected due to more accurate information available

CLIMATE CHANGE: ENERGY AND GREENHOUSE GAS EMISSIONS

Energy balance

Fuel 756 (838) GWh
- Renewable 0 (0)
- Non-renewable 756 (838)

Heat 648 (675) GWh
- Renewable 366 (407)
- Non-renewable 281 (268)

Electricity 3,454 (3,446) GWh
- Renewable 788 (887)
- Non-renewable 2,666 (2,560)

Total purchased energy 4,857 (4,959) GWh
- Renewable 1,154 (1,294)
- Non-renewable 3,704 (3,666)

Energy consumption 4,363 (4,431) GWh

Heat sold off-site 414 (448) GWh

Electricity sold off-site 81 (80) GWh

ENERGY CONSUMPTION BY GEOGRAPHY IN 2019

Finland **42%** USA **35%** Rest of world **23%**

GRI 302-1: Energy consumption within the organization
GRI 302-3: Energy intensity
GRI 302-4: Reduction of energy consumption

Energy consumption and management

Energy costs amount to approximately 14% of our total sourcing spend. By continually improving energy efficiency at manufacturing sites, we are consistently reducing our energy usage and equivalent costs.

In 2019, our operations in Finland accounted for 42% of our total energy consumption. The USA accounted for 35%, and other countries 23%.

Approximately 91% of our total energy consumption is used by 14 large manufacturing sites. A substantial portion of our energy management activities is focused on these most energy-intensive sites, which include seven sodium chlorate manufacturing plants in Finland, USA, Uruguay and Brazil.

Electricity is our most important energy source, accounting for 71% of the total energy input. Sodium chlorate plants purchase 90% of the electricity. Therefore, the management of volatile electricity prices play an important role in capacity utilization planning.

ENERGY BALANCE GWh	**GRI disclosure**	**2019**	**2018**	**2017**	**2016**	**2015**
TOTAL FUEL AND PURCHASED ENERGY INPUT		**4,857**	**4,959**	**4,890***	**4,719***	**4,144**
Consumed fuel as energy source		756	838*	841*	886*	582
Non-renewable	302-1a	756	838*	841*	886*	582
Renewable	302-1b	0	0	0	0	0
Purchased electricity	302-1c	3,454	3,446	3,322	3,135*	2,935
Non-renewable		2,666	2,560	2,467	2,573*	2,301
Renewable		788	887	855	562*	634
Purchased heat and steam	302-1c	648	675	727	699	627
Non-renewable		281	268	323	311	262
Renewable		366	407	404	430	365
TOTAL FUEL AND PURCHASED ENERGY INPUT BY SOURCE	**302-1a, b**	**4,857**	**4,959***	**4,890***	**4,731***	**4,144**
Non-renewable		3,704	3,666*	3,631*	3,770*	3,145*
Renewable		1,154	1,294	1,259	992*	999*
TOTAL ENERGY SOLD		**495**	**528**	**479**	**492**	**465***
Heat[1] sold off-site	302-1d	414	448	401	414	390
Electricity sold off-site	302-1d	81	80	78	78	76
TOTAL ENERGY CONSUMPTION[2]	**302-1e**	**4,363**	**4,431***	**4,411***	**4,227***	**3,679**
CHANGE IN TOTAL ENERGY CONSUMPTION[3]	**302-4**	**-68**	**20***	**183**	**548***	**-7**
Production volume, 1,000 tonnes		5,128	5,312*	5,164*	5,028	4,845
ENERGY INTENSITY, GWh per 1,000 tonnes of production[4]	**302-3**	**0.85**	**0.83***	**0.85***	**0.84***	**0.76**

* Minor updates to data were provided by sites during 2019 data collection.

[1] Sum of steam, district heat, condensate, and other heat delivered off-site.

[2] The amount of fuel consumed plus purchased electricity and heat minus heat and electricity sold.

[3] Comparison of total energy consumption to the previous year.

[4] Kemira has calculated the energy intensity by dividing total energy consumption with the annual production volume. Energy intensity is strongly dependent on the types of production mix.

Energy Efficiency Enhancement program – E3plus

During 2019, we continued upgrading our E3plus (Energy Efficiency Enhancement) program established in 2010. The E3plus program aims to reduce the overall specific energy consumption, measured as kWh per tonne of product, at each of our manufacturing sites.

The key focus areas of the E3plus program are:

- Continuing the global alignment of energy efficiency management across all Kemira sites
- Focused and thorough E3 Energy Reviews to identify improvement projects and support their implementation at our manufacturing sites
- Technical and economic evaluation of investment projects to improve energy efficiency
- Further development of the Kemira energy efficiency management system, improving energy management, and obtaining and maintaining ISO 50001 certification in selected major energy consuming sites.

During 2019, we strengthened our global Energy Management Team (EMT), whose members represent the top management of our manufacturing sites, as well as our global energy sourcing management. The EMT coordinates, steers and supports energy management activities across all regions.

Kemira has joined the voluntary national Energy Efficiency Agreement in Finland (”Energiatehokkuussopimus”), which is a part of EU’s response to the Paris Climate Agreement, for the period 2017–2025 (EU-level program). Until now, more than 30 implemented energy savings projects have been reported to the National Energy Authority (”Energiavirasto”).

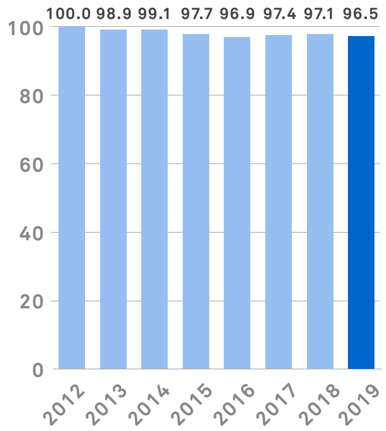
Our energy efficiency measures and activities have a special focus on sites, which have the highest energy consumption. Site-specific energy efficiency targets are defined for the largest energy consuming sites, based on energy consumption baseline data, the findings of E3 Energy Reviews, and the availability of resources.

In 2019, we continued to focus on large-scale manufacturing processes, with investments made in more energy efficient equipment and production lines. The continuous modernization of the process equipment used in our most energy-intensive sodium chlorate plants, especially those in Joutseno (Finland), Äetsä (Finland), Fray Bentos (Uruguay) and Ortigueira (Brazil), has enabled us to achieve and sustain a desired energy efficiency level. Furthermore, Kemira Oyj’s Energy Management System in Europe and the manufacturing sites in Helsingborg (Sweden), and Äetsä and Joutseno (Finland), San Giorgio (Italy) and Fredrikstad (Norway), have been certified to ISO 50001.

Energy savings were additionally achieved during 2019 through the implementation of 27 projects (25 in 2018) across Kemira’s operations. The resulting energy savings totaled 23,327 MWh (19,175 MWh in 2018) with cost savings of EUR 0.7 million (EUR 0.6 million in 2018). The cumulative cost savings that were achieved through the implementation of 532 such initiatives completed globally since 2010, now total EUR 11.1 million.

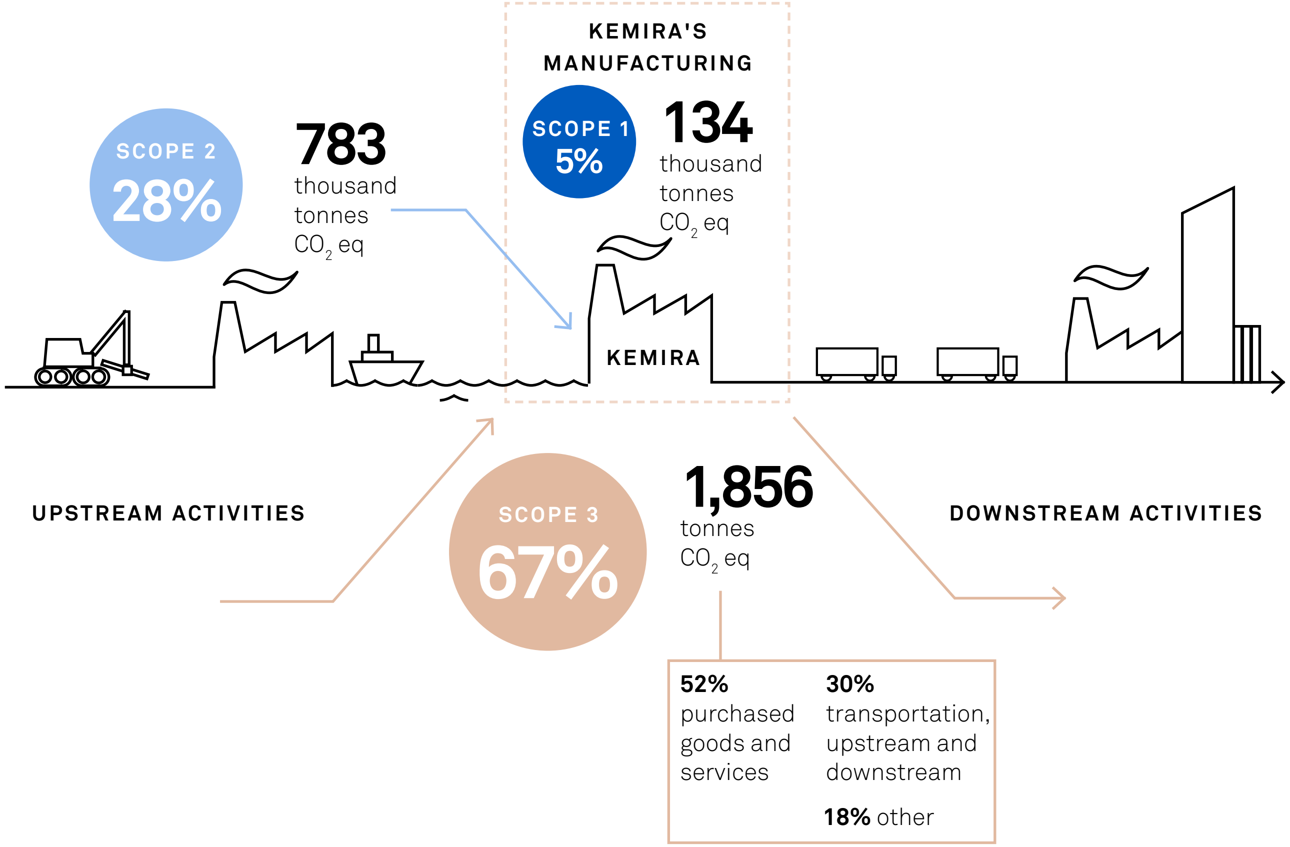
Our Energy Efficiency Index enables us to monitor the trend of energy efficiency improvement on a consolidated basis.

KEMIRA ENERGY EFFICIENCY INDEX



The Kemira Energy Efficiency Index measures the ratio of energy use to production volumes normalized to a 2012 benchmark for our 14 large manufacturing sites covering approximately 90% of energy consumption (91.1% in 2019). The index is not affected by changes in production volumes but may be affected by the product mix.

Greenhouse gas emissions



KEMIRA'S MANUFACTURING

SCOPE 1 5%

134 thousand tonnes CO_2 eq

SCOPE 2 28%

783 thousand tonnes CO_2 eq

UPSTREAM ACTIVITIES

SCOPE 3 67%

1,856 tonnes CO_2 eq

52% purchased goods and services

30% transportation, upstream and downstream

18% other

DOWNSTREAM ACTIVITIES

- **Scope 1 (direct), market-based**

  Emissions from fuels to produce energy in sites owned and controlled by Kemira

- **Scope 2 (indirect), market-based**

  Emissions from purchased electricity, heat and steam consumed at Kemira's manufacturing sites

- **Scope 3 (indirect)**

  Emissions from purchased raw materials, fuel and energy related activities, upstream transportation, downstream transportation and distribution and other downstream activities

EMISSIONS BY GEOGRAPHY IN 2019

Scope 1 and Scope 2, market-based

Finland	USA	Rest of world
38%	36%	26%

Kemira's GHG emissions are primarily carbon dioxide (CO_2), and negligible emissions of methane (CH_4) and nitrous oxide (N_2O). Kemira estimates GHG emissions using factors in terms of CO_2 equivalent (CO_2eq.) and does not specifically estimate and report mass emissions of CH_4 and N_2O since CO_2 comprises over 99% of CO_2eq. emissions.

The majority of the electricity used at our Kemira manufacturing sites is obtained from external providers. Many Kemira facilities consume steam and heat generated on-site.

Direct (Scope 1) GHG emissions from Kemira's manufacturing sites are from the following sources:

- Generation of electricity, heating, cooling and steam: these Scope 1 emissions result from the combustion of fuels in stationary sources, such as boilers and internal combustion engines. Kemira's manufacturing sites generally use low-carbon intensive fuels such as natural gas, propane, and diesel fuel
- Emissions from physical or chemical processing of raw materials and chemicals such as sodium and calcium carbonate

Indirect (Scope 2) GHG emissions include, but are not limited to, the CO_2 emissions from the generation of purchased or acquired electricity, heating, cooling, and steam consumed by an organization. Furthermore, many sites purchase or acquire electricity, heating, cooling, and steam resources from either the local municipal authority or from a separate manufacturing facility located within the same industrial complex.

Other indirect (Scope 3) GHG emissions are a consequence of Kemira's business activities, but occur from sources not owned or controlled by our company.

Development of GHG emissions in relation to production volumes

Scope 1 emissions in 2019 were less than 2018 emissions, corresponding to a decrease in production compared to 2018. Two significant natural gas consuming sites also experienced prolonged shutdowns which decreased the amount of natural gas used as a fuel at the sites.

Scope 2 emissions were consistent with 2018 levels despite the decrease in production. In addition, the fuel mix for our centralized energy supplier in Finland consumed slightly more non-renewable fuels compared to 2018.

Scope 3 emissions in 2019 were consistent with previous year's emissions within the level of accuracy associated with the calculation methodology. Purchased goods and services (including capital goods) cover 51% (61%), and transportation and distribution emissions (upstream and downstream) 30% (18%) of our Scope 3 emissions. Waste generated and transported by our plants remained 5% (5%) of overall Scope 3 emissions.

The overall GHG emissions intensity for 2019 is within the range of historical levels.

GRI 305-1: Direct (Scope 1) GHG emissions
GRI 305-2: Energy indirect (Scope 2) GHG emissions
GRI 305-3: Other indirect (Scope 3) GHG emissions
GRI 305-4: GHG emissions intensity
GRI 305-5: Deduction of GHG emissions

GREENHOUSE GAS (GHG) EMISSIONS CO_2eq 1,000 tonnes	**GRI disclosure**	**2019**	**2018**	**2017**	**2016**	**2015**
TOTAL GHG EMISSIONS[1]		**2,773**	**2,672***	**2,872**	**2,684**	**2,665**
Direct (Scope 1) GHG emissions[2a]	305-1	134	152*	153	162	169
Change		-18	-1*	-9	-7	25
Biogenic Direct (Scope 1) GHG emissions[2b]	305-1c	0	0	0	n.a.	n.a.
Change		0	0	n.a.	n.a.	n.a.
Energy indirect (Scope 2) emissions: market-based[3a]	305-2	783	778	799	792	786
Change		5	-21	8	6	-6
Energy indirect (Scope 2) emissions: location-based[3b]		897	1,044	1,048	999	994
Change		-147	-4	49	5	n.a.
Other indirect emissions: Scope 3[4a]	305-3a	1,856	1,697	1,920	1,730	1,710
Change		159	-233	230	20	129
Other indirect emissions: Scope 3 Biogenic emissions[4b]	305-3c	0	0	0	n.a.	n.a.
Change		0	0	n.a.	n.a.	n.a.
CHANGE IN TOTAL GHG EMISSIONS	**305-5**	**101**	**-245***	**188***	**19**	**149**
Production volume, 1,000 tonnes		5,128	5,312*	5,164	5,028	4,845
GHG EMISSIONS INTENSITY, tCO_2 per tonnes of production[5]	**305-4**	**0.54**	**0.50***	**0.56***	**0.53**	**0.55**

* Minor updates to data were provided by sites during 2019 data collection.

1. Scope1 + Scope 2 market-based + Scope 3.

2a. GHG emissions from sources that are owned or controlled by Kemira (Scope 1 of the WRI/WBCSD GHG Protocol). GHG emissions are calculated as CO_2eq which includes CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3.

2b. GRI Standard specifies reporting of biogenic emissions reported starting in 2017.

3a. GHG emissions from the generation of purchased electricity, steam and heat that is consumed by Kemira (revised Scope 2 of the WRI/WBCSD GHG Protocol). Market-based emissions are used for target setting and following progress. Location-based emissions are also shown, but these are not used for other indicators. GHG emissions are calculated as

CO_2eq which includes CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3. The sources for the emission factors used are the IEA, the UK government's Department for Environment, Food and Rural Affairs (DEFRA), Motiva Ltd. and energy utility companies.

3b. Location based Scope 2 emissions were calculated first time in 2015.

4a. GHG emissions from Kemira's value chain (Scope 3 of WRI/ WBCSD GHG Protocol). Minor changes have occurred for previous years as more updated data was available for this report.

4b. GRI Standard has introduced requirement of disclosure of biogenic emissions, which Kemira started to report in 2017.

5. Kemira has calculated the GHG emissions intensity as the ratio of total GHG emissions per production volume. Direct GHG emissions (Scope 1), indirect GHG emissions from energy consumption (Scope 2 market-based) and other indirect GHG emissions (Scope 3) are included.

GRI-305-3: Other indirect (Scope 3) GHG emissions

During 2019 we reviewed the assumptions for categories 1. Purchased goods and services; 4. Upstream transportation and distribution; and 9. Downstream transportation and distribution. Based on more accurate data on transportation and distribution, we were able to calculate the category 4 and 9 emissions more accurately.

OTHER INDIRECT (SCOPE 3) GHG EMISSIONS BY CATEGORIES CO$_2$eq 1,000 tonnes	**GRI disclosure**	**2019**	**2018**	**2017**	**2016**	**2015**
TOTAL SCOPE 3 EMISSIONS	**305-3d**	**1,856**	**1,697**	**1,920**	**1,730**	**1,710**
1. Purchased goods and services		950	1,040	960	840	870
2. Capital goods*		*	*	*	*	*
3. Fuel and energy related activities		230	240	240	230	230
4. Upstream transportation and distribution		290	110***	240	220	200
5. Waste generated in operations		90	80	80	40	20
6. Business travel		5**	5**	5	10	10
7. Employee commuting		10**	10**	10	10	10
8. Upstream leased assets (leased offices)		10**	10**	10	10	10
9. Downstream transportation and distribution		270	200***	370	370	350
11. Use of sold products		*	*	0	0	0
12. End-of-life treatment of sold products		1	2	2	2	0

* Emissions of Category 2: Capital goods are included in Category 1: Purchased goods and services.

** Categories 6–8 were not after 2017 because contributing less than 2% in earlier years. 2018 and 2019 were assumed to be at the same level as historical years.

*** The average distance for water transportation decreased in 2018 compared to 2017.

Scope 3 was restated in 2015 due to more accurate information available. As a more detailed calculation was carried out. Category 12 End-of-life treatment of sold products changed significantly. Category 12 covers all products sold. If a product is not known to have a new lifecycle, it is classified as waste. Category 11 emissions were estimated to be zero or close to zero, as Kemira does not sell combustible fuels, products that form GHG emissions during use, or products that contain GHG.

The calculation is based on the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard and a supporting guidance document Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain. Scope 3 emissions have been calculated since 2012. GHG emission are calculated as CO$_2$eq. The sources for the emission factors used include the guidance document for the Chemical Sector, the DEFRA, the IEA, Ecoinvent, CEFIC and ECTA. Data covers all of Kemira's production sites according to Kemira consolidation rules. The margin of error for Scope 3 calculations is +/- 20%.

NOTE: Category 10 Processing of sold products is not calculated because it cannot be reasonably tracked; Category 13 Downstream leased assets is not relevant to chemical sector; Category 14 Franchises is not relevant to chemical sector; Category 15 Investments: No information available."

GRI 305-6: Emissions of ozone-depleting substances (ODS)

GRI 305-7: Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions

Nitrogen oxides (NOx) emissions increased approximately by 5.5% compared to 2018 and is now at the same level as 2015. Sulfur oxides (SOx) emissions has decreased by approximately 10% from 2018 and approximately 24% since 2015.

Kemira almost exclusively uses zero and low carbon fuels such as hydrogen and natural gas for its on-site steam and heat requirements. Mobile equipment such as fork trucks also use low carbon fuels such as natural gas, propane, and low-sulfur diesel fuel. Therefore, Kemira's releases into air are not a material topic for GRI reporting purposes. However, Kemira continues to report these releases in accordance with GRI requirements and reviews materiality on a periodic basis.

RELEASES INTO AIR tonnes	**GRI disclosure**	**2019**	**2018**	**2017**	**2016**	**2015**
Nitrogen oxides (NOx)[1]	305-7a.i	192	182	161	160	194
Sulfur oxides (SOx)[2]	305-7a.ii	63	70	77	84	83
Volatile organic compounds (VOC)[3]	305-7a.iv	569	649	574	783	430
Other air emissions[4,5]	305-7a.vii	447	349	99	173	55
Particulates (PM)	305-7a.vi	18	16	18	11	14
Persistent organic pollutants (POP)[5]	305-7a.iii	n.a.	n.a.	n.a.	n.a.	n.a.
Hazardous air pollutants (HAP)[5]	305-7a.v	9	10	13	n.a.	n.a.
Ozone-depleting substances[6]	305-6	n.a.	n.a.	0	0	0

1. NOx consist of nitric oxide and nitrogen dioxide.
2. SOx consists of sulfur dioxide and sulfur trioxide.
3. VOC is a sum of volatile organic compounds as defined in EU Directive 1999/13/EC.
4. Other standard categories of air emissions identified in relevant regulations. New reporting requirement starting in 2017. Includes former reporting requirement of Volatile Inorganic Compounds (VIC), which was reported as the sum of ammonia, hydrogen chloride and six other simple inorganic compounds through 2016. GRI Standard no longer requires reporting of VIC.
5 New reporting requirement starting in 2017. Changes in emissions between Other air emissions, and HAP may be attributable to how emissions are regulated in a specific location. For example, acrylonitrile is specifically regulated under the term "HAP" in the United States and would be reported as such. However, acrylonitrile may not be regulated using the term HAP in another country and may be reported under Other air emissions.
6 A value of zero represents emissions equal to or greater than 0 and less than 0.5 tonnes. Limited emissions are primarily from one manufacturing site. The manufacturing site eliminated the use of the ozone delpeting substance. Therefore, after 2016, emissions are reported as N/A. The emissions from the substitute material are reported under Other air emissions.

WATER
GRI 303-3: Water withdrawal
GRI 303-4: Water discharge
GRI 303-5: Water consumption
GRI 306-1: Water discharge quality

Water management approach

Through our EHSQ Policy, we strive to minimize water consumption and minimize the negative impact of water discharge activities on the quality of receiving water bodies. Kemira's manufacturing processes require water primarily for use as cooling water and process water.

We are continuously evaluating opportunities to decrease water withdrawal, consumption, discharge, and associated impacts through water recycling and reuse, and process redesign and optimization projects in our upgraded and new production line projects. Where possible, water is recycled and/or reused at our sites to reduce water withdrawal, consumption, and discharge.

Wastewater and cooling water discharges at the manufacturing sites are subject to chemical sector regulations and local discharge requirements (permitting and effluent quality), including the profile of the receiving waterbody. Wastewater generated from Kemira's manufacturing processes are primarily treated in third-party wastewater treatment plants prior to discharge to a waterbody. Cooling water does not usually require treatment prior to discharge.

Information presented in this report is based on the GRI 303: Water and Effluents 2018 standard that was adopted

2019 Overview of water flows
megaliters

WATER WITHDRAWAL	WATER DISCHARGES	WATER CONSUMPTION
90,572	81,721	8,851
(100,112)	(91,562)	(8,550)

Surface water	65%
Groundwater	3%
Seawater	19%
Third-party water	13%

Surface water	72%
Groundwater	0%
Seawater	21%
Third-party water	7%
Treatment not required (mainly cooling water)	92%
Purified in own or external wastewater treatment plant	8%

in Kemira for the 2019 GRI Disclosures. Water withdrawal and discharge in our manufacturing sites is categorized as freshwater (<1,000 mg/L Total Dissolved Solids), except for one site that uses seawater as cooling water and discharges to seawater (>1,000 mg/L Total Dissolved Solids).

In accordance with the guidance provided in GRI 303-5, water consumption consists of the water withdrawn and incorporated into products, evaporated, consumed by humans, or otherwise unusable by others such that it is not released back to surface water, groundwater, seawater, or a third-party. Water storage is not a significant water-related impact at our manufacturing sites and therefore, is not reported in our disclosure.

Water risk assessment

In 2019, there were no significant fines or non-conformities with regards to environmental laws or regulations or claims from external wastewater treatment plant authorities against Kemira.

In 2019, Kemira updated water risk assessment, using the World Resources Institute's Aqueduct Water Risk Atlas, a global mapping tool to identify water risks. The mapping covered all manufacturing sites. The results indicated that our withdrawals do not significantly affect water sources and basins for the following reasons:

- About 89% of total water withdrawal was used as cooling water and none of Kemira’s discharges are known to have, or are likely to have, a significant impact on the water body and associated habitats and users.
- Based on the location of the manufacturing sites, the overall water risk was rated “Low” for 49% of the sites, “Low to Medium” for 35%, “Medium to High” for 6%, “High” for 5% and "Extremely High" for 5% of the sites.
- Based on the location of the manufacturing sites, 58% of sites are located in area of "Low" water stress, 14% in area of "Low to Medium" water stress, 15% in area of "Medium to High" water stress, 5% in area of "High" water stress and 8% in area of "Extremely High" water stress.
- The manufacturing sites located in areas of water stress (areas of “High” or “Extremely High” water stress - that is, areas in which more than 40% of available water is used by industry, household and agriculture) comprise 0.5% of total water withdrawal and 3.6% of total water consumption.

Water withdrawal, consumption and discharge trends

The total water withdrawal decreased by approximately 10% from 2018 and by approximately 8% compared to 2015. The total water consumption increased by approximately 4% from 2018 but has decreased by approximately 4% compared to 2015. The water withdrawal intensity (m^3 per tonnes of production) decreased by approximately 6% from 2018 and by approximately 13% compared to 2015.

The total water discharges decreased by approximately 11% from 2018,and by approximately 8% compared to 2015. Chemical Oxygen Demand (COD) discharges increased by approximately 98% from 2018 and the discharge of suspended solids increased by approximately 117%. The increase in COD and suspended solid discharges in 2019 are primarily related to the biological wastewater treatment plant at one manufacturing site. Therefore, changes in COD and suspended solid discharge at the plant have significant influence in Kemira's total COD and suspended solid discharge. Wastewater discharges by quality (including COD and suspended solids) are not a material topic for Kemira for GRI reporting purposes. However, Kemira continues to report the discharges in accordance with GRI requirements and reviews materiality on a periodic basis.

OVERVIEW OF WATER FLOWS megaliters	**GRI disclosure**	**2019**		**2018**	**2017**	**2016**	**2015**
		All areas	**Areas with water stress**	**All areas**	**All areas**	**All areas**	**All areas**
WATER WITHDRAWAL BY SOURCES, TOTAL	**303-3**	**90,572**	**433**	**100,112***	**98,166***	**102,347**	**98,212**
Surface water		59,173	1	62,393	66,951	68,560	65,494
Groundwater		2,386	146	3,251	3,061	2,728	3,606
Seawater		16,893	n.a.	23,345	20,851	23,888	22,520
Third party-water		12,120	286	11,122	7,303	7,171	6,592
Third party-water by source	Surface water	n.a.	148	n.a.	n.a.	n.a.	n.a.
	Groundwater	n.a.	138	n.a.	n.a.	n.a.	n.a.
	Seawater	n.a.	n.a	n.a	n.a.	n.a.	n.a.
WATER DICHARGES BY DESTINATION, TOTAL	**303-4, 306-1**	**81,721**	**112**	**91,562***	**91,246***	**95,309***	**89,012***
Surface water		58,933	n.a	62,949	65,522	66,612	61,736
Groundwater		n.a	n.a	n.a	n.a	n.a.	n.a.
Seawater		17,014	n.a	23,463	21,000	24,057	22,671
Third party-water		5,775	n.a	5,149	4,724	4,641	4,604
Third party-water sent for use to other organizations		4,137	n.a	3,329	3,035	3,108	3,059
Water discharge by treatment	No treatment (mainly cooling water)	75,455	n.a	85,910	86,022	90,188	83,920
	Own treatment	535	n.a	557	585	561	537
WATER CONSUMPTION	**303-5**	**8,851**	**321**	**8,550**	**6,921**	**7,038**	**9,200**
WATER WITHDRAWAL INTENSITY, m^3 per tonnes of production		**17.7**	**1.5**	**18.8**	**19.0***	**20.4***	**20.3***
Production volumes, thousands of tons		5,128	281	5,312*	5,164*	5,028	4,845

* Minor updates to data were provided by sites during 2019 data collection.

The calculations have been made according to GRI Standards. The figures presented are based on data collected from Kemira's sites.

The figures presented are based on data collected from Kemira's sites. Reporting is done first time in accordance with the GRI 303: Water and Effluents 2018 standard.

Breakdown of volumes by freshwater (<1,000 mg/L Total Dissolved Solids) and seawater (>1,000 mg/L Total Dissolved Solids) is not provided since one site only uses seawater as cooling water and discharges to seawater.

Produced water as defined in GRI 303 is generated in limited amounts in Kemira’s two tall oil plants. The share of produced water is less than 0.05% of total water withdrawal and therefore not included in the table.

Water withdrawal and water discharge reduced significantly from 2018 due to closure of a production plant at one site and annual variation in the need of cooling water.

TOTAL WATER DISCHARGES BY QUALITY tonnes	**GRI disclosure**	**2019**	**2018**	**2017**	**2016**	**2015**
Chemical Oxygen Demand (COD)[3]	306-1a.ii	67	34	38	34	16
Biological Oxygen Demand (BOD)	306-1a.ii	1	1	0	0	1
Nitrogen (N)	306-1a.ii	4	3	3	3	2
Phosphorus (P)	306-1a.ii	1	1	1	1	1
Suspended solids[3]	306-1a.ii	10	5	4	1	2
Other (e.g., heavy metals, chlorides)[1]	306-1a.ii	371	326	291	308	9
Total Organic Carbon (TOC)[2]	306-1a.ii	1	1	1	n.a.	n.a.

The calculations have been made according to GRI Standards. Data limited to wastewater discharges from own treatment. In total, 13 sites are required to have own treatment prior to direct discharge to a waterbody. Wastewater generated from Kemira's manufacturing processes are primarily treated in third-party wastewater treatment plants prior to discharge to a waterbody. Kemira reports discharge quality data only from sites required by environmental laws and regulations or other requirements to monitor these parameters. Treatment methods are in accordance with local permits and contract agreements with third-party wastewater treatment plants. The treatment methods vary depending on local conditions and legal requirements.

1. In 2016, these releases consisted of chlorides at some sites. The increase in tonnes in the "Other" category is related to primarily to one site experiencing a significant increase in discharge volume compared to 2015 and to the availability of more accurate analytical data.
2. First reported in 2017.
3. Discharges from one biological wastewater treatment plant constitutes more than 80% of total COD and suspended solids discharges in Kemira. The increase in discharge of COD is due to temporary performance issues and increase in discharge of suspended solids due to change in analysis method at this wastewater treatments plant. The temporary performance issue has been solved.

WASTE

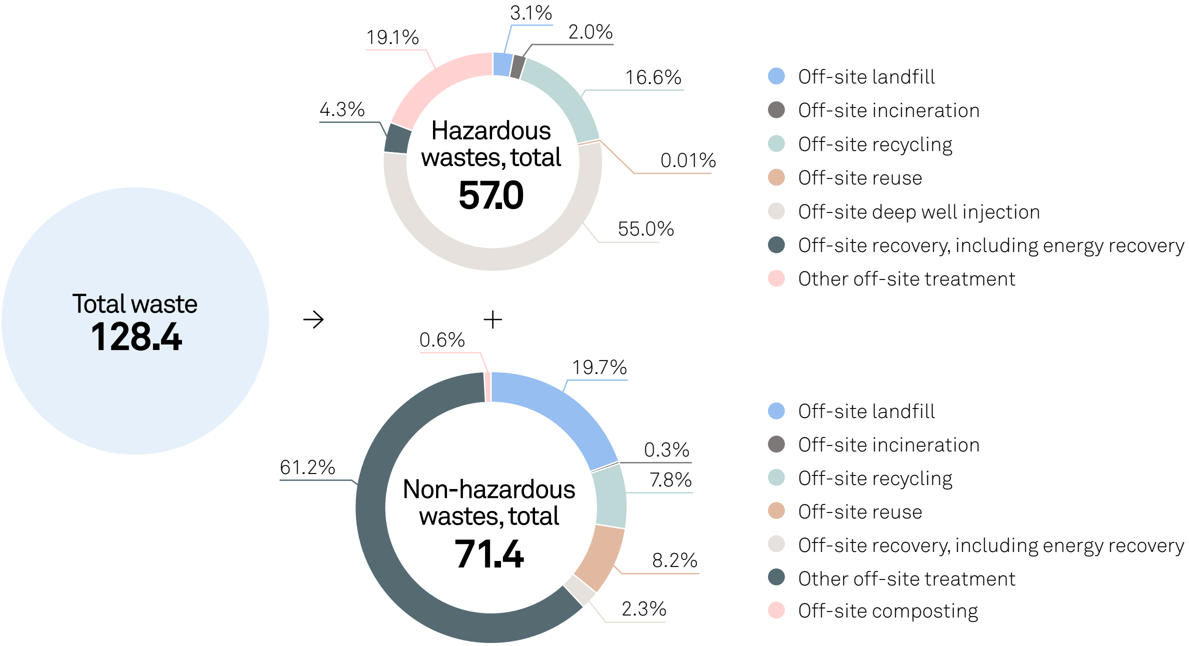
GRI 306-2: Waste by type and disposal method

Through our EHSQ Policy, Kemira strives to minimize the amount of industrial and municipal waste generated through consistent material flow management processes and improvements to the efficiency of manufacturing processes. Waste in Kemira is disposed, or recovered in compliance with statutory requirements. The waste streams from our manufacturing sites vary by site and harmonization of these waste streams and their definitions has been more challenging than expected. Efforts in 2018–2019 to collect detailed data and assess our manufacturing waste streams will continue in 2020. We aim to define KPIs and long term targets for hazardous waste reduction during 2020.

Hazardous waste

10 manufacturing sites generate approximately 90% of the hazardous waste. In 2019, one site alone accounted for 55% of total hazardous waste generated, due to disposal of stormwater potentially impacted by acrylamide. Disposal of stormwater at the site as hazardous waste is in accordance with local legislation and regulations. The significant share of certain sites to generate hazardous waste has been recognized and analysis for different solutions to decrease the generation of hazardous waste is under process. The total amount of hazardous waste increased by approximately 6% from 2018 primarily due to increase in generation of stormwater at the site described above and also due to increased production and improved data collection and reporting.

TOTAL WASTE BY TYPE AND DISPOSAL METHOD
1,000 tonnes



Non-hazardous waste

Total amount of non-hazardous waste increased by approximately 4% from 2018. This is primarily due to opening of a new manufacturing site in 2019 that accounted for 27% of total non-hazardous waste, as well as improved data collection and reporting.

GRI 306-2: Waste by type and disposal method

WASTE 1,000 tonnes	**GRI disclosure**	**2019**	**2018**	**2017**	**2016**	**2015**
HAZARDOUS WASTES, total	**306-2a**	**57.0**	**53.9***	**50.8***	**52.0***	**77.8***
Off-site landfill		1.8	1.8	1.9	1.1	1.3
Off-site incineration		1.1	1.3	6.2*	5.0	2.6
Off-site recycling		9.5	10.2	6.3	7.4	9.6
Off-site reuse		0.0	0.0			
Off-site deep well injection[1,2]		31.3	29.9	26.3	28.2	54.8
Off-site recovery, including energy recovery		2.4	2.5	0.0	0.0	0.0
Other off-site treatment[2]		10.9	8.2*	9.9*	10.3*	9.5*
On-site incineration		n.a.	n.a.	0.2*	0.1*	0.0
On-site landfill		n.a.	n.a.	n.a.	n.a.	n.a.
NON-HAZARDOUS WASTES, total	**306-2b**	**71.4**	**68.8***	**60.0***	**28.2***	**32.5***
Off-site landfill		14.1	13.6	19.2	12.5*	10.6*
Off-site incineration		0.2	0.4	1.3*	1.6	1.3
Off-site recycling		5.6	5.9*	4.5	7.4*	14.9
Off-site reuse		5.9	6.7			
Off-site recovery, including energy recovery		1.6	1.1	0.0	n.a.	n.a.
Other off-site treatment		43.7	40.6*	34.4*	6.6*	5.4*
Off-site composting[1]		0.4	0.5	0.5	n.a.	n.a.
On-site incineration		n.a.	n.a.	n.a.	n.a.	n.a.
On-site landfill		n.a.	n.a.	n.a.	0.1*	0.3*
TOTAL WASTE DISPOSAL		**128.4**	**122.8***	**110.8***	**80.2***	**110.3***

* Minor updates to data were provided by sites during 2019 data collection

1. New disposal method reported starting in 2017.
2. Kemira has updated these values to account for the impact of the new disposal methods introduced in 2017. For example, "Other off-site treatment" included deep well injection during 2013–2016. The values in this table will differ from previous reports.

In 2019, one site alone accounted for 55% of total hazardous waste generated, due to disposal of stormwater potentially impacted by acrylamide (deep well injection). Disposal of stormwater at the site as hazardous waste is in accordance with local legislation and regulations.

Waste disposal method was determined based on information provided by the waste disposal contractor.

Total weight of non-hazardous waste increased significantly from 2017 onwards due to acquisitions.

GRI 306-3: Significant spills

Kemira follows an Incident Reporting Standard that defines incident types and establishes the minimum requirements for incident reporting and classification of all EHSQ incidents. This standard applies to all Kemira employees, contractors, temporary and supplemental staff at all Kemira and/or customer locations.

Kemira's definition of a significant spill includes spill resulting in one or more of the following:

- A spill or leak of more than 1,000 kg of a hazardous chemical (those chemicals identified as hazardous or dangerous by federal, provincial, state or local regulations, or by internationally recognized protocols such as, United Nations dangerous goods classification or assigned a reportable quantity if spilled) outside of secondary containment or to the atmosphere
- Requirement for immediate reporting of an environmental release/spill to a regulatory agency
- Substantial negative publicity

In 2019 there were 10 significant spills compared to nine in 2018.

- Transportation incidents (including related loading and unloading activities) accounted for three significant spills. Two occurred at our manufacturing site and one at customer's site. The total volume of the transportation incidents was approximately 40 tonnes.
- Manufacturing incidents accounted for seven significant spills. All occurred at our manufacturing sites. The total volume of the significant spills at manufacturing plants were approximately 40 tonnes.

The significant spills did not have a permanent or significant impact on the environment beyond the remediated material. These spills were not reported in Kemira's Financial Statements.

GRI 306-4: Transport of hazardous waste

In 2019, approximately 57,000 tonnes of hazardous waste were transported by, or on behalf of Kemira, to external suppliers not owned by Kemira. Hazardous waste was not imported or treated by Kemira in 2019.

One of our sites in South America does not have a treatment or disposal option within the country for some of its hazardous wastes. Therefore, it must be shipped to the EU for disposal. In 2019, there were 28.3 tonnes of hazardous waste exported from South America to Europe for disposal and 1.3 tonnes of hazardous waste between EU countries. In total, less than 1% of the hazardous waste generated in 2019 (less than 1% in 2018) by Kemira was shipped internationally.

ENVIRONMENTAL COMPLIANCE

GRI 307-1: Non-compliance with environmental laws and regulations

Kemira's integrated EHSQ management system includes an Auditing Standard to verify conformance with Kemira policies and standards, ISO/OHSAS standards, and EHSQ legal compliance. Kemira regularly conducts EHSQ compliance audits at manufacturing sites, research and development laboratories, and offices. Audits are performed by Kemira's independent internal auditing team and external consultants. Kemira's robust integrated EHSQ management system requires all sites to report non-compliances to the group's Global EHSQ Team using our incident reporting program (Synergi Life).

The following summarizes the significant fines or non-compliances with environmental laws or regulations at Kemira manufacturing sites in 2019:

- One inorganic coagulant site in the United States received a fine of approximately EUR1,100 following an agency inspection related to process safety management requirements. The non-conformities were corrected as required and the case is considered closed.
- The same inorganic coagulant facility received a fine of approximately EUR18,000 related to a hazardous material spill at the site that occurred in 2017. The facility corrected the non-conformities following the incident as required by the agency. However, the administrative penalty was not issued until 2019.
- No significant non-monetary sanctions were placed against Kemira in 2019.

SOCIAL

INFORMATION ON EMPLOYEES

GRI 102-8: Information on employees and other workers

At the end of 2019, Kemira employed 5,062 people (4,915). The employee distribution by region shows that 50% (53%) of Kemira's total workforce were employed in EMEA, and 32% (33%) in the Americas. The number of employees have increased by 147 (183). The increase is mainly due to capacity expansion in manufacturing operation in China. Workers who are legally recognized as self-employed, or individuals other than the ones in Kemira's payroll are not counted on these numbers.

Kemira uses external service providers (contractors) which work at Kemira locations. These services cover, for example maintenance, repair, turnaround, major renovation, or specialty work at a Kemira site. We do not record the number of people but follow the contractor hours as this information is included in the workplace safety indicator TRIF. In 2019, there was approximately 3.1 million hours which equals to about 1,650 FTE (Full Time Equivalents) when assuming 7.5 hours per day and 250 working days per year.

GRI 102-8: Total number of employees

	2019	2018	2017	2016	2015
TOTAL NUMBER OF EMPLOYEES*	**5,062**	**4,915**	**4,732**	**4,818**	**4,685**
Females, %	26%	26%	26%	26%	26%
Males, %	74%	74%	74%	74%	74%
White collar, %	59%	60%	62%	61%	62%
Blue collar; %	41%	40%	38%	39%	38%

* At year end

GRI 102-8a: Total number of employees by employment contract (permanent and temporary), by gender

	2019	2018	2017	2016	2015	%,2019	%,2018	%,2017	%,2016	%,2015
TOTAL NUMBER OF EMPLOYEES	**5,062**	**4,915**	**4,732**	**4,818**	**4,685**					
Permanent	4,940	4,789	4,615	4,715	4,559	97.6%	97.4 %	97.5%	97.9%	97.3%
Fixed term	122	126	117	103	126	2.4%	2.6 %	2.5%	2.1%	2.7%
FEMALES TOTAL	**1,295**	**1,255**	**1,223**	**1,259**	**1,220**					
Permanent	1,237	1,205	1,175	1,227	1,171	95.5%	96.0 %	96.1%	97.5%	96.0%
Fixed term	58	50	48	32	49	4.5%	4.0 %	3.9%	2.5%	4.0%
MALES TOTAL	**3,767**	**3,660**	**3,509**	**3,559**	**3,465**					
Permanent	3,703	3,584	3,440	3,488	3,388	98.3%	97.9 %	98.0%	98.0%	97.8%
Fixed term	64	76	69	71	77	1.7%	2.1 %	2.0%	2.0%	2.2%

GRI 102-41: Collective bargaining agreements

The percentage of employees covered by collective bargaining agreements by 'significant locations of operation' varies widely between regions. The coverage is the lowest in North America (USA 4%, Canada 16%), which is characteristic of the region, whereas in South America (Brazil, Uruguay) all employees are covered.

In the APAC region, collective bargaining agreements occur in the chemical industry only in a few countries, Indonesia, Vietnam, Korea and Thailand, where almost all employees are covered by collective bargaining agreements. In many European countries, all employees are covered by collective bargaining agreements, especially in Northern Europe (Finland, Sweden) and Southern Europe (Spain, France, Italy). In Central and Eastern Europe, the percentage varies (e.g. UK 33%, Germany 29%, Netherlands 61%), and in some countries there are no collective bargaining agreements.

The definition used for 'significant locations of operation' refers to countries where we have 10 or more employees. In Kemira's case, there are 25 countries with 10 or more employees and which altogether represents 99% of all employees.

GRI 102-8b. Total number of employees by employment contract (permanent and temporary), by region

	2019	2018	%, 2019	%, 2018
TOTAL NUMBER OF EMPLOYEES	**5,062**	**4,915**		
Americas	1,570	1,559	31.0%	31.7%
APAC	947	777	18.7%	15.8%
EMEA	2,545	2,579	50.3%	52.5%
Total Permanent	**4,940**	**4,789**		
Americas	1,570	1,559	31.8%	32.6%
APAC	947	777	19.2%	16.2%
EMEA	2,423	2,453	49.1%	51.2%
Total Temporary	**122**	**126**		
Americas	0	0	0.0%	0.0%
APAC	0	0	0.0%	0.0%
EMEA	122	126	100.0%	100.0%

GRI 102-8c. Total number of employees by employment type (full-time and part-time), by gender

	2019	2018	2017	2016	2015*	%,2019	%,2018	%,2017	%,2016	%,2015*
TOTAL EMPLOYEES	**5,062**	**4,915**	**4,732**	**4,818**	**4,559**					
Full-time	4,980	4,842	4,660	4,747	4,481	98.4%	98.5 %	98.5%	98.5%	98.3%
Part-time	82	73	72	71	78	1.6%	1.5 %	1.5%	1.5%	1.7%
TOTAL FEMALES	**1,295**	**1,255**	**1,223**	**1,259**	**1,171**					
Full-time	1,240	1,202	1,168	1,208	1,106	95.8%	95.8 %	95.5%	95.9%	94.4%
Part-time	55	53	55	51	65	4.2%	4.2 %	4.5%	4.1%	5.6%
TOTAL MALES	**3,767**	**3,660**	**3,509**	**3,559**	**3,388**					
Full-time	3,740	3,640	3,492	3,539	3,375	99.3%	99.5 %	99.5%	99.4%	99.6%
Part-time	27	20	17	20	13	0.7%	0.5 %	0.5%	0.6%	0.4%

* 2014–2015 numbers for permanent employees

EMPLOYMENT

GRI 401-1: New employee hires and employee turnover

The total number of new hires in 2019 was 751 (804), out of which 28% (28%) were female and 72% (72%) male. The new hires include summer trainee and other temporary positions. Kemira's new hiring reflects changes in diversity from the previous year. The total turnover rate was 9.7% in 2019 compared to 10.1% in 2018. The total turnover is based on permanent workforce.

The turnover rate in APAC region was 6.7% (9.3%), which was the lowest of the regions. The highest turnover rate was in the Americas 11.0% (12.3%) and the EMEA region had a turnover of 10.0% (9.0%). The turnover rate was highest at the age group <30 years 14.6% (16.2%), the rate showing a slight decrease from 2018. The turnover rate of male 9.7% (9.5%) was for the first time higher than turnover rate of female 9.5% (11.8%), which was the lowest in five years period.

GRI 401-1 a. Total number and rate of new employee hires during the reporting period, by age group, gender and region

	Number of new hires					% of total new hires				
	2019	2018	2017	2016	2015	%, 2019	%, 2018	%, 2017	%, 2016	%, 2015
TOTAL NEW HIRES	**751**	**804**	**597**	**695**	**673**					**100.0%**
NEW HIRES BY AGE GROUP										
<30	289	319	286	284	293	38%	40 %	48%	41%	44%
30–50	396	420	260	358	312	53%	52 %	44%	52%	46%
>50	66	65	51	53	68	9%	8 %	9%	8%	10%
NEW HIRES BY GENDER	**751**									
Females	208	222	188	218	208	28%	28 %	31%	31%	31%
Males	543	582	409	477	465	72%	72 %	69%	69%	69%
NEW HIRES BY REGION	**751**									
APAC	233	203	79	173	60	31%	25 %	13%	25%	9%
EMEA	335	365	352	364	373	45%	45 %	59%	52%	55%
Americas	183	236	166	158	240	24%	29 %	28%	23%	36%

GRI 401-1 b. Total number and rate of employee turnover during the reporting period, by age group, gender and region

	Turnover					Turnover, %				
	2019	2018	2017	2016	2015	%, 2019	%, 2018	%, 2017	%, 2016	%, 2015
TOTAL TURNOVER	**489**	**497**	**570**	**441**	**490**	**9.7%**	**10.1 %**	**12.0%**	**9.2%**	**10.5%**
TURNOVER BY AGE GROUP										
<30	83	96	109	72	78	14.6%	16.2 %	19.3%	12.4%	13.6%
30–50	253	253	258	228	263	8.5%	8.9 %	9.9%	8.2%	9.8%
>50	153	148	203	141	149	10.2%	10.0 %	13.0%	9.6%	10.4%
TURNOVER BY GENDER	**489**									
Female	123	148	193	136	144	9.5%	11.8 %	15.8%	10.8%	11.8%
Male	366	349	377	305	346	9.7%	9.5 %	10.7%	8.6%	10.0%
TURNOVER BY REGION	**489**									
APAC	63	72	83	53	56	6.7%	9.3 %	12.8%	8.1%	10.4%
EMEA	254	233	282	214	225	10.0%	9.0 %	11.0%	8.2%	8.8%
Americas	172	192	205	174	209	11.0%	12.3 %	13.5%	11.2%	13.2%

LABOR/MANAGEMENT RELATIONS

GRI 401-2: Benefits provided to full-time employees that are not provided to temporary or part-time employees

The benefit programs at Kemira differ depending on regional and country specific practices, and the programs have been stable across recent years without major changes to the practices. In most countries, the same benefits are offered to full-time and part-time employees, and for temporary employees hired directly by Kemira, if the temporary contract exceeds a certain length.

Benefit practices are country specific and typically do not vary between locations and operations. Some exceptions apply – for example. some countries offer additional insurance and/or retirement benefits for permanent full-time employees. In North America, the eligibility for benefits is dependent on hours worked, in the USA employees are eligible if they work a minimum of 20 hours per week.

GRI 402-1: Minimum notice periods regarding operational changes

As stated in our Code of Conduct, all sites are obliged to follow local legislation, regulations and other agreements regarding labor practices, including notice periods. Minimum notice periods are defined in laws or in collective agreements, and are followed in each country accordingly. The time period for the consultation process relating to operational changes varies by country and region, starting from 14 days for smaller changes to up to six months in some countries and for major changes, varying between one to two months in most countries.

OCCUPATIONAL HEALTH AND SAFETY

GRI 403-2: Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities

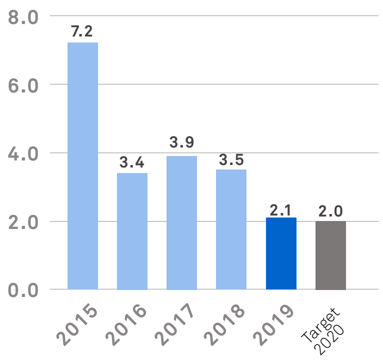
Our health and safety performance in 2019 improved substantially compared to 2018. Kemira reports the occupational safety performance indicator as Total Recordable Injuries (TRI) which includes permanent injuries and fatalities, lost time incidents, restricted work cases and medical treatment cases covering Kemira employees and contractors working at Kemira sites. TRI Frequency (TRIF) is measured as Total Recordable Injuries per million working hours.

Total number of TRIs in 2019 was 30 (44) and TRIF was 2.1 (3.5). The ratio of contractors' TRIs to total number of TRIs remained consistent with the 2018 level. Long-term trend was very positive and we continue to strive toward our 2020 goal of TRIF 2.0.

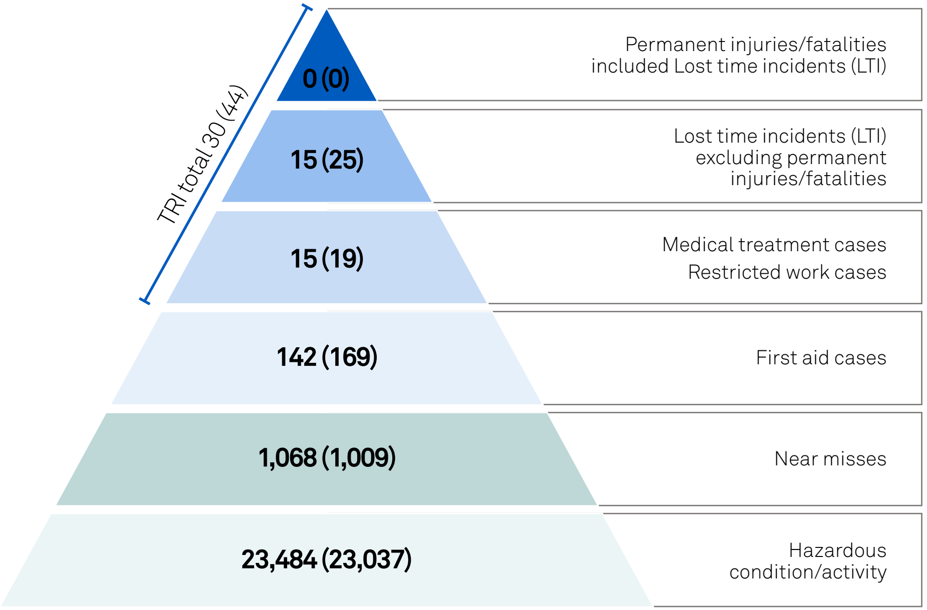
No fatalities have been associated with Kemira employees since 2005. In 2019, we had no permanent injuries and the overall injury severity calculated as a ratio of number of LTIs and number of all TRIs decreased from 2018. Additionally, the total number of LTIs decreased from 25 (2018) to 15 (2019). The noticeable decline in incident severity is responses to ongoing management commitment, progressive safety communication and an overall improvement in safety culture. Unfortunately, we had one significant process incident. Five employees were exposed to chemicals, with one having to stay in the hospital for eight days. The remaining four employees were examined and released without medical treatment. No permanent injuries resulted from this incident, Kemira received a penalty of approximately EUR 4,000 because of this incident.

To improve our health and safety culture, the Behavior Based Safety (BBS) Program has been one of our top priorities since 2016. In 2019, we continued to implement the BBS program. Across industry, behavioral human factors are involved in more than 90% of incidents. Our BBS program now covers all of Kemira manufacturing sites. Improved communication, quality of observations and positive feedback had a renewed emphasis at established BBS sites. 95% of NA manufacturing sites completed a refreshment program in 2019. The BBS program continues to generated numerous field observations of behaviors (both positive and negative) that are being used to prevent hazardous conditions and potential injuries. The Kemira safety culture has matured to a point that we now need to lean on proactive methods and leading indicators to push our performance. Our safety development now needs a strong focus on behavior-based safety, and people's hearts and minds to successfully work.

OUR SAFETY PERFORMANCE (TRIF)



PERSONAL INJURIES PYRAMID 2019 (2018)


TRI total 30 (44)
0 (0)
Permanent injuries/fatalities included Lost time incidents (LTI)
15 (25)
Lost time incidents (LTI) excluding permanent injuries/fatalities
15 (19)
Medical treatment cases
Restricted work cases
142 (169)
First aid cases
1,068 (1,009)
Near misses
23,484 (23,037)
Hazardous condition/activity

We have continued to improve our internal communication of health and safety incidents, reviews and proactive campaigns during 2019.

During the 2018 Safety Campaign – "Stop. Think. Act." we focused on overall employee and contractor safety mindset and culture. In 2019, we completed a new "Life Saving Rules" campaign. This campaign differed from the previous, not on its intent but on its focus. The "Life Saving Rules" campaign focused on six high-hazard (non standard) work topics that put employees at the greatest risk of serious injury or death. Based on the international best practices in the oil and gas industry the "Life Saving Rules" campaign focused on life-critical work activities such as confined space, working at height, work authorization, energy isolation, line of fire and hot work. These campaign topics were translated into 18 languages and were promoted with posters, online advertisements, internal articles, weekly EHSQ Bulletins and Monthly Regional EHSQ communication calls. Also Life Saving Rules survey was conducted. Survey focused on communication and implementation of rules and directed to the Manufacturing and Sales groups in Kemira.

Hazardous Conditions/Activities reporting is a leading safety indicator reflecting environmental or behavior related hazards at the workplace. The number of reported Hazardous Conditions/Activities was 23,484 in 2019 which equals to 4.6 per Kemira employee. In addition of these 10.232 BBS observations were reported. This type of proactive identification of Hazardous Conditions/Activities not only allows us to avoid incidents but also improves our operations and work methods.

Total Recordable Injuries

TRI	2019	2018	2017	2016	2015
TOTAL TRI	**30**	**44**	**48**	**46**	**77**
Kemira employees	21	30	31	32	56
Contractors working at Kemira site	9	14	17	14	21
REGIONAL TRI					
APAC	2	4	1	2	1
EMEA	19	22	31	22	53
Americas	9	18	16	22	23

TRI Frequency	2019	2018	2017	2016	2015
GLOBAL TRIF	**2.1**	**3.5**	**3.9**	**3.4**	**7.2**
Regional TRIF					
APAC	0.6	2.0	0.6	0.9	0.6
EMEA	3.5	4.1	6.0	3.4	10.6
Americas	2.3	4.6	5.1	4.8	5.7

Lost Time Incidents

LTI	2019	2018	2017	2016	2015
TOTAL LTI	**15**	**25**	**27**	**20**	**30**
Kemira employees	11	15	18	13	21
Contractors working at Kemira site	4	10	9	7	9
REGIONAL LTI					
APAC	1	0	1	2	1
EMEA	11	16	23	12	22
Americas	3	9	3	6	7

LTI Frequency	2019	2018	2017	2016	2015
GLOBAL LTIF	**1.1**	**2.0**	**2.2**	**1.5**	**2.7**
REGIONAL LTIF					
APAC	0.3	0	0.6	1.0	0.6
EMEA	2.0	3.0	4.6	2.1	5.4
Americas	0.8	2.3	1.0	0.8	2.0

TRAINING AND EDUCATION

GRI 404-1: Average hours of learning per year per employee

Kemira aims to capture all training, education and employee development related hours in the learning management system (LMS) continued to advance in achieving this goal. So far, leadership development activities, regional and global competence development and vocational training programs and many local programs are recorded in the LMS. However, some remaining training and development activities are still recorded locally.

Training hours registered in the system for larger countries in 2019 are Finland 9,767 (8,856) hrs, UK 8,751 (6,037) hrs, Sweden 5,990 (5,476) hrs, USA 6,281 (4,919) hrs, Netherlands 2,839 (3,833) hrs, China 43,897 (10,569) hrs and Poland 6,969 (6,186) hrs. The increase in recorded learning hours in China is due to the capacity expansions as well as more focused way to capture local trainings.

The average hours of learning for employees do not differ significantly by gender. Globally registered average hours per employee for blue collar employees are somewhat higher than for white collar employees indicating that trainings at manufacturing sites are also well recorded using our learning management system.

GRI 404-2: Programs for upgrading employee skills and transition assistance programs

Kemira provides each employee with access to the relevant competence development programs and structured learning opportunities to support upgrading of employee skills through on-the-job learning programs (including generic and job-specific competence development), buddy/coaching/mentoring programs, and traditional methods like classroom and eLearning.

The scope includes:

- Leadership development (internal and external) programs
- Professional & technical competence development programs
- Statutory or compliance related programs

These programs are available based on the position, skills/competence level and career aspirations. With the exception of leadership development programs and other external cost based programs (pre-approval required), employees can typically enroll and complete the self-paced learning programs available through our LMS (Learning Management System). We had a strong leadership development portfolio offering and consistent participation in 2019.

Examples of other global and regional programs offered during 2019 are listed below:

- Code of Conduct, anti-corruption, human rights and business and other compliance programs delivered mainly through eLearning
- Learning Solutions for Commercial roles as part of professional competence development included Value Selling, Negotiation, Insight, Innovation & Creativity, Adaptability and Strategic Thinking delivered as new co created eLearning and face to face workshops.
- GDPR fundamentals, principles and rights and obligations
- Renewed information security awareness training
- EHSQ related programs including EHSQ Policy, Code of Behavior, Communicating on chemical hazards, Crisis management,
- Training on Performance and Development Discussions
- Digital competencies developed as part of the Kemira digital hub and basics of robotics process automation program

Kemira also provides transition assistance programs where relevant, with bigger changes to facilitate the continued employability and management of career endings resulting from retirements or termination of employment. These have included:

- Up-skills training for those intending to continue working with Kemira
- Severance pay
- Career planning and out-placement/job placement services

GRI 404-3: Percentage of employees receiving regular performance and career development reviews

Our global performance and development discussion (PDD) process covers all permanent employees, both white collar and blue collar, who are not absent for an extended time period because of leave, for example. Temporary employees' inclusion in the PDD process is evaluated case-by-case, depending on the length of the contract.

GRI 404-3a. Percentage of total employees by gender and by employee category who received a regular performance and career development review during the reporting period

Performance and Development Discussion (PDD)	Number of employees covered by PDD					PDD Coverage,%				
	2019	2018	2017	2016	2015	%, 2019	%, 2018	%, 2017	%, 2016	%, 2015
TOTAL PERMANENT EMPLOYEES NOT ABSENT*	**4,771**	**4,597**	**4,626**	**4,590**	**4,440**					
PDDs BY GENDER										
Employees covered in Global PDD process	4,593	4,093	4,139	4,009	4,147	96%	89%	89%	87%	93%
Women covered in Global PDD process	1,142	1,099	1,119	1,116	1,030	98%	95%	97%	93%	96%
Men covered in Global PDD process	3,464	2,994	3,020	2,893	3,117	96%	87%	87%	85%	93%
PDDs BY EMPLOYEE CATEGORY										
White collars covered in Global PDD process	2,748	2,731	2,778	2,702	2,730	98%	97%	98%	98%	97%
Blue collars covered in Global PDD process	1,845	1,362	1,275	1,307	1,417	94%	76%	71%	72%	

* All permanent employees, who are not absent for an extended time period, because of leave, for example, are covered by global performance and development discussion process.

DIVERSITY AND EQUAL OPPORTUNITY

GRI 405-1: Diversity of governance bodies and employees

During 2019, the share of females in the Board of Directors remained the same (50%). The percentage share of females (26%) in the total number of employees has remained constant over the years 2016–2019. The number of females in executive positions (Directors and above) has remained on the same level as in 2018 (29%).

GRI 405-1 a. Percentage of individuals within the organization's governance bodies in each of the following diversity categories: Gender, age group, other indicators of diversity where relevant

Performance and Development Discussion (PDD)	Total					%				
	2019	2018	2017	2016	2015	%, 2019	%, 2018	%, 2017	%, 2016	%, 2015
MANAGEMENT BOARD										
Total	**8**	**8**	**8**	**10**	**10**					
Female	1	1	1	2	2	13%	13%	13%	20%	20%
Male	7	7	7	8	8	88%	88%	88%	80%	80%
By age group										
<30	0	0	0	0	0	0%	0%	0%	0%	0%
30–50	1	1	1	2	5	13%	13%	13%	20%	50%
>50	7	7	7	8	5	88%	88%	88%	80%	50%
BOARD OF DIRECTORS										
Total	**6**	**6**	**6**	**7**	**6**					
Female	3	3	3	3	2	50%	50%	50%	43%	33%
Male	3	3	3	4	4	50%	50%	50%	57%	67%
By age group										
<30	0	0	0	0	0	0%	0%	0%	0%	0%
30–50	1	1	1	1	0	17%	17%	17%	14%	0%
>50	5	5	5	6	6	83%	83%	83%	86%	100%

a. Percentage of individuals within the organization's governance bodies in each of the following diversity categories:
i. Gender;
ii. Age group: under 30 years old, 30–50 years old, over 50 years old;
iii. Other indicators of diversity where relevant (such as minority or vulnerable groups).

As stated in our Code of Conduct, we respect the diversity, talent and abilities of others. We at Kemira define 'diversity' as all the unique characteristics that make up each of us: personality, lifestyle, work experience, ethnicity, religion, gender, sexual orientation, age, national origin, ability and other characteristics. We focus our efforts to attract, develop and retain a workforce that is diverse, and to ensure an inclusive work environment that embraces the strength of our differences. We do not discriminate or treat employees or job applicants unfairly in matters that involve recruiting, hiring, training, promoting, compensation or any other term or condition of employment.

GRI 405-1b. Percentage of employees per employee category in each of the following diversity categories: Gender, age group, other indicators of diversity where relevant

	Total					%				
	2019	2018	2017	2016	2015	%, 2019	%, 2018	%, 2017	%, 2016	%, 2015
TOTAL EMPLOYEES	**5,062**	**4,915**	**4,732**	**4,818**	**4,685**	**100%**	**100 %**	**100%**	**100%**	**100%**
<30	569	594	566	579	575	11%	12 %	12%	12%	12%
30–50	2,989	2,848	2,607	2,772	2,672	59%	58 %	55%	58%	57%
>50	1,504	1,473	1,559	1,467	1,438	30%	30 %	33%	30%	31%
Female in total	**1,295**	**1,255**	**1,223**	**1,259**	**1,220**	**26%**	**26 %**	**26%**	**26%**	**26%**
<30	171	179	190	179	188	13%	14 %	16%	14%	15%
30–50	858	827	764	823	773	66%	66 %	62%	65%	63%
>50	266	249	269	257	259	21%	20 %	22%	20%	21%
Male in total	**3,767**	**3,660**	**3,509**	**3,559**	**3,465**	**74%**	**74 %**	**74%**	**74%**	**74%**
<30	398	415	376	400	387	11%	11 %	11%	11%	11%
30–50	2,131	2,021	1,843	1,949	1,899	57%	55 %	53%	55%	55%
>50	1,238	1,224	1,290	1,210	1,179	33%	33 %	37%	34%	34%

b. Percentage of employees per employee category in each of the following diversity categories:
i. Gender;
ii. Age group: under 30 years old, 30–50 years old, over 50 years old;
iii. Other indicators of diversity where relevant (such as minority or vulnerable groups).

GRI 405-2: Ratio of basic salary and remuneration of women to men

Kemira operates a global job structure that is applied to all white-collar employees. The job structure describes job families and the respective job roles with required qualifications and main responsibilities. The job structure links to job grades, which define the salary range and the incentive opportunity for a specific job role. The job grades and salary data information allow Kemira to evaluate, analyze and implement equal remuneration. Factors impacting salary increases includes employee performance and the position of an employee's salary within the salary range, as well as country-specific statutory increases and merit increase opportunities. Incentive payouts are based on measured achievement for pre-defined targets on the company, unit and individual levels.

NON-DISCRIMINATION

GRI 406-1: Incidents of discrimination and corrective actions taken

During 2019, 17 incidents were reported to the Ethics & Compliance function alleging potential violations to the Code of Conduct. All cases were investigated, 10 of the cases were closed with merit and remediated during 2019. Only 1 alleged incident was regarding a potential discrimination and it was closed without merit.

Disclosure 405-2a. Ratio of the basic salary and remuneration of women to men for each employee category, by significant locations of operation.

Country	Women to men ratio 2019	Women to men ratio 2018	Women to men ratio 2017	White Collar Headcount 2019
Austria	89%	87%	95 %	48
Brazil	92%	85%	79 %	132
Canada	90%	88%	88 %	128
China	89%	93%	93 %	290
Finland	90%	92%	91 %	584
Germany	97%	96%	97 %	85
Italy	93%	90%	90 %	67
Netherlands	91%	89%	93 %	82
Poland	97%	97%	92 %	330
Spain	85%	84%	83 %	54
Sweden	99%	97%	96 %	136
United Kingdom	92%	92%	93 %	90
United States	92%	92%	89 %	600
Total for largest countries	**92%**	**92%**	**90 %**	**2,626**

FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING

GRI 407-1: Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk

Kemira respects the freedom of association and collective bargaining as stated in our Code of Conduct, and through our signatory of the United Nations Global Compact.
We expect our suppliers to respect these same principles and commit to the Kemira Code of Conduct for Business Partners (CoC-BP). All of our Suppliers (engaged with a SAP Purchased Order) receive a written reference to CoC-BP as part of the Kemira general terms of purchase on the back of the Purchase Order.

To increase Kemira employees' awareness of their rights regarding freedom of association and collective bargaining, we provide regular training on our Code of Conduct.

In 2019, Kemira did not identify any violations of freedom of association or collective bargaining in our own operations, and no evidence has been found to indicate that suppliers would be restricting their employees' opportunities to exercise freedom of association and collective bargaining based on sustainability assessments of our key suppliers, representing approximately 39% of our total spend since 2014.

For additional information, see the Integrity section for details of our Code of Conduct training and Ethics and Compliance hotline. Details of the numbers of employees covered by collective bargaining agreements are given under GRI 102-41.

HUMAN RIGHTS ASSESSMENT

GRI 412-1: Operations that have been subject to human rights reviews or impact assessments

The Human Rights Impact Assessment was conducted in 2014 to identify any risks of a human rights impact throughout our operations and value chain, and any potential gaps in our management approach to human rights as evaluated against the Operational Principles of the United Nations Guiding Principles of Business and Human Rights. The findings indicated a potential risk impact arising from our business with hazardous chemicals, upstream and downstream business relationships, and emerging market expansion. The Human Rights issues most relevant to Kemira relate to employment practices and the health and safety aspects of our products, workplace and operations.

During 2019, we have continued to integrate human rights aspects into our management system. The focus has been on increasing overall awareness and due diligence on human rights throughout the organization. All employees are provided regular and compulsory training on the Code of Conduct, including an awareness of human rights. The group of employees (white collar) who are responsible for ensuring that human rights are respected in our business relationships and in our own operations were provided the basic training on human rights in 2015 and since then all new hires must participate in this training as part of their induction program.

Key activities in 2019

- Continued the global 90-day onboarding program for new hires (white collars) that automatically assigns online courses on Code of Conduct and Human Rights and Business. By the end of 2019, 64% of white collar new hires have completed the basic training on Human rights and Business as part of their onboarding program.
- All relevant sales team members are trained on third party due diligence for potential new business partners and a new process is introduced to further develop our third-party risk management.
- Workplace safety – we further developed our safety culture through the Behavior Based Safety Culture program, target setting, training and communications measure. For more information, see indicator GRI 403-2 for workplace safety.
- Product safety – product lifecycle management. For more information, see indicator GRI 416-1 for product stewardship.
- Supplier audits – For more information, see Chapter 2 supplier assessment and audits.

PUBLIC POLICY

GRI 415-1: Political contributions

The Kemira Code of Conduct, Kemira Group Sponsorship and Donation policy and the Kemira Group Gifts, Entertainment and Anti-bribery Policy, prohibit any financial support to politicians, political parties or political organizations. No financial or any in-kind political contributions paid by Kemira have come to Kemira's attention during 2019.

CUSTOMER HEALTH AND SAFETY

GRI 416-1: Assessment of the health and safety impact of product and service categories

According to Kemira's product stewardship policy, we are acting:

- to comply with all applicable chemical regulatory requirements in the countries where we either manufacture and/or sell chemicals covering raw materials, intermediates, processing aids and products
- to make hazard assessments covering regulatory compliance, human health, and safety, as well as environmental protection aspects, as part of the Product Lifecycle Management processes throughout products' lifecycle from development to termination
- to maintain data related to chemical products and substances including raw materials is managed in ERP and is linked to Product Lifecycle Management tool/process
- to proactively identify and manage chemical risks and concerns to build management action plans for the identified unacceptable risks to human health, safety or environment; covering all substances from raw materials to products
- to share information with our stakeholders about the health and safety aspects of products and to ensure that our customers can safely use our products

Kemira complies with all laws and regulations relating to chemicals and trade. Kemira does not sell any banned products. We continuously screen substances that are covered by any regulatory restrictions, or subject to substitution requirements imposed by non-regulatory stakeholders. We proactively work to mitigate health, safety, environmental and image-related risks (GRI 102-2: Activities, brands, products, and services).

We regularly review substances with threat-for-use restrictions or authorization at different phases of regulatory processes in all jurisdictions where Kemira operates. We have some substances listed in the EU REACH regulation list for Substances of Very High Concern (SVHC). At the end of 2019, 95% (20 out of 21) of the identified 21 SHVC substances had a management plan approved by the Operational Excellence board.

GRI 416-2: Incidents of non-compliance concerning the health and safety impact of products and services

We are not aware of any fine, penalty or warning for noncompliance with regulations and voluntary codes regarding our products or services in 2019.

MARKETING AND LABELING

GRI 417-1: Requirements for product and service information and labeling

Kemira's product portfolio consists of seven major product lines and approximately 1,650 different products. All of these products are duly documented and labeled according to legal requirements, including the identification of their hazardous components and information on their safe use. Kemira provides Safety Data Sheets (SDS) for all products, independent of the product safety classification, even if in most jurisdictions Safety Data Sheets are mandatory only for hazardous products. Our IT system for Product Lifecycle Management enables us to prepare SDSs and labels in alignment with the latest regulatory data requirements and in the official languages of the countries where our products are manufactured, stored or sold. In EU member states, the information requirements are stated under REACH regulations with regard to substance properties, exposure, use and risk management measures, and the chemical safety assessment. Registered uses will also be communicated via the updated extended SDSs for downstream users. In addition to the information provided on product labels and Safety Data Sheets, more detailed information about products and their raw material ingredients can be provided on request.

In 2019, the Kemira Product Stewardship & Regulatory Affairs team responded to 7,799 (6,863 in 2018) requests concerning product safety and/or regulatory. The response time for those requests is one of our internal key performance indicators (KPIs).

GRI 417-2: Incidents of non-compliance concerning product and service information and labeling

Our customer complaints management process handles complaints by recording the complaint, investigation, root cause and corrective action determination and implementation and communication with the customer. During the process complaints are classified with a complaint reason from a predefined list. The process and system in use are able to exclude those complaints that Kemira has met the agreed requirements with the customer. All complaints are actively monitored, evaluated and corrected as required by the quality management system in use at Kemira.

Non-compliance related to product and service information usually makes reference to insufficient information on the label.

During 2019, a total of 63 customer complaints were recorded relating to labeling, of which 41 cases were in the EMEA region, 14 in the Americas, and eight in the APAC region. All cases have been investigated and needed corrective actions have been implemented.

During 2019, no incidents of non-compliance with regulations resulting in any fine, penalty or warning were reported within Kemira's operations.

SOCIOECONOMIC COMPLIANCE

GRI 419-1: Non-compliance with laws and regulations in the social and economic area

We are not aware of any fine, penalty or warning for noncompliance with laws and/or regulations in 2019.

GRI 417-1: Product and service information provided

TOPIC	PRODUCT AND SERVICE INFORMATION PROVIDED BY KEMIRA
The sourcing of components of the product or service	Only if requested by customers
Content, particularly with regard to substances that might produce an environmental or social impact	As required by law, always in Safety Data Sheets (SDS) and on the labels. Additional information about chemicals in our products for voluntary certification/compliance schemes such as eco-labeling is also provided to customers upon request and when applicable
Safe use of the product or service	Safe use of a product or service is communicated in the SDSs and on the labels. Registered uses will be communicated via the extended SDSs. Additional information about the use, dosage and application is provided to customers when applicable
Disposal of the product and environmental/social impacts	When legally required, disposal of a product and environmental/social impact are communicated in the SDSs and on the labels

Reporting practice

REPORTING SCOPE AND CONTENT

GRI 102-10: Significant changes to the organization and its supply chain

At the end of the year 2019, Kemira had 64 (64 in 2018) manufacturing sites of which 64 were included in the environmental reporting scope, and 64 in the auditing scope of our integrated management system. There were no significant changes in the company structure, size or ownership.

GRI 102-46: Defining report content and topic boundaries

When defining the relative importance of material topics for reporting purpose we have taken into account our economic, environmental and social impact, stakeholder expectations, our purpose and strategy, and our commitments to the Code of Conduct, United Nations Global Compact, SDGs and Responsible Care program. According to the GRI 101 Foundation standard, the principles for defining the report content were applied when assessing material topics and boundaries.

The most significant economic, environmental and social impacts

Economic impact: We generate revenue by selling chemical products and solutions for industrial uses in the pulp and paper, oil and gas, mining, and water treatment industries. We have a direct economic impact on suppliers and service providers through the payments we make for raw materials and services, to employees through compensation and benefits, to capital providers through dividends and interest payments, to the public sector through taxes, and to society through local community projects, sponsorship and donations. Unethical business behavior could impact Kemira’s reputation and thus financial position.

Environmental impact: We have a positive environmental impact through our products and solutions which enable our customers to improve their water, energy and raw material efficiency. Our main environmental risks relate to carbon emissions from our own manufacturing and in the value chain due to our purchasing activities, upstream and downstream transportation, and to potential incidents through accidental release of chemicals or process safety deficiencies.

Social impact: Our main social impact, and related risks, concern safety in the workplace, safe use of our products along the value chain and any possible non-compliance with responsible business practices in our own operations or those of our business partners.

Prioritization process of material topics

Identification: Material topics relevant to Kemira have been identified based on their relative magnitude of impact and respective concerns raised by our stakeholders. The most recent materiality assessment was done in 2016–2017. Representatives of our key stakeholder groups were interviewed to identify their expectations of Kemira, a benchmark study on material disclosure topics was carried out and major sustainability related development trends were analyzed.

Prioritization: The identified topics were prioritized with reference to the relative importance to stakeholders, and to the relevance to Kemira’s business and strategy, as well as the significance of specific topics related to the global chemical sector. Based on the prioritization, we have selected 20 GRI disclosure topics out of 33 topics as defined by the GRI (2016) standards. In addition to these GRI topics, we also disclose information and performance data on sustainable products and product stewardship, which is material but not covered by the GRI standards.

Validation: Data compilation practices for the identified material topics were reviewed and defined. Group level KPIs and targets are defined for the most material topics which are reported as Corporate sustainability priorities.

Review: Group level KPIs and targets for corporate sustainability priorities are approved and annually reviewed by the Management Board and by the Board of Directors.

GRI 102-47: List of material topics

The economic, environmental and social impact of our business activities take place both directly through our own operations and indirectly through our upstream and downstream operations.

The prioritized material disclosure topics are shown in the table Material topics reflecting Kemira's economic, environmental and social impact (p. 66). These material topics, the respective topic boundaries and data compilation practices are reported in the table "Material topics and their boundaries".

Material topics reflecting Kemira´s economic, environmental and social impact (GRI disclosures topics and own topics)

	INDIRECT IMPACT		DIRECT IMPACT	INDIRECT IMPACT	
	Production of input materials and energy	**Upstream services**	**Kemira’s own operations**	**Downstream services**	**Use of Kemira products**
ECONOMIC IMPACT	• Anti-corruption • Anti-competitive behavior	• Anti-corruption • Anti-competitive behavior	• Sustainable products and solutions (own topic) • Economic performance* • Anti-corruption • Anti-competitive behavior	• Anti-corruption • Anti-competitive behavior	
ENVIRONMENTAL IMPACT	• Emissions (Scope 3) • Supplier performance for their environmental impacts	• Emissions (Scope 2 and Scope 3) • Supplier performance for their environmental impacts	• Materials • Energy • Water • Emissions (Scope 1) • Effluents and waste • Environmental compliance	• Emissions (Scope 3) • Supplier performance for their environmental impacts	• Emissions (Scope 3) • Sustainable products and solutions (own topic)
SOCIAL IMPACT	• Supplier performance for their social impacts and ethical business behavior	• Supplier performance for their social impacts and ethical business behavior	• Employment*, and Labor/Management relations* • Occupational health and safety • Training and education • Diversity and equal opportunity • Non-discrimination • Freedom of association and collective bargaining • Human rights assessment • Public policy • Customer health and safety • Marketing & labeling • Socioeconomic compliance	• Supplier performance for their social impacts and ethical business behavior	

* Not material but reported because considered useful based on continuity

GRI 102-48: Restatements of information

A few restatements of environmental data have been done due to correction or reclassification of data from some manufacturing sites (electricity sold off-site, water recycled, waste discharged) or review of assumptions of Scope 3 calculations (raw materials, upstream and downstream transportations).

GRI 102-49: Changes in reporting

There were no significant changes in the reporting.

REPORT PROFILE

GRI 102-50: Reporting period

The reporting period is from January 1 to December 31, 2019.

GRI 102-51: Date of most recent report

Kemira's previous Annual Report including non-financial information (GRI disclosures) was published on February 19, 2020.

GRI 102-52: Reporting cycle

Kemira's Annual Report is published yearly, by calendar year. The Annual Report consists of Business Overview, Corporate Sustainability, Corporate Governance statement and Financial statements.

GRI 102-53: Contact point for questions regarding the report

The contact point for questions is Kemira Communications and Corporate Responsibility. Contact details are available at **www.kemira.com**.

GRI 102-54: Claims of reporting in accordance with the GRI standards

- The report is prepared in accordance with the GRI standards (2016): core option. However the updated 2018 version of GRI 303: Water and Effluents has been applied.
- Communication on Progress (COP) of the United Nations Global Compact at Global Compact Active level by using the GRI-standards reporting principles.

MANAGEMENT APPROACH

GRI 103: Management approach

The management of corporate sustainability is focused on three priority areas: sustainable products and solutions, responsible operations and supply chain, and people and integrity which cover also the 20 prioritized GRI disclosure topics and one additional topic not included in the GRI topic-specific standards.

GRI 103-1: Explanation of the material topic and its boundary

Material topics covered by the management approach are explained in the table on this page, and the boundaries in the table Material topics and their boundaries (pages 65–66).

GRI 103-2: The management approach and its components

See Chapter 2 for a detailed description.

GRI 103-3: Evaluation of the management approach

See Chapter 2, Results and key activities for 2019 for detailed description.

CORPORATE SUSTAINABILITY PRIORITIES	MANAGEMENT APPROACH (GRI 103-1)	MATERIAL GRI DISCLOSURE TOPICS COVERED BY THE MANAGEMENT APPROACH
Sustainable products and solutions	Products improving our customers' sustainability	Sustainable products and solutions (Kemira's own material topic, reported based on the GRI 103 Management approach); Materials
	Chemical safety management throughout the products' lifecycle	Customer health and safety; Marketing and labeling; Socioeconomic (product) compliance.
Responsible operations and Supply Chain Management	Responsible management of our own operations,	Energy; Water; Emissions; Effluents and waste; Environmental compliance; Occupational health and safety
	Responsible performance and good governance throughout our supply chains	Supplier environmental assessment; Supplier social assessment.
People and integrity	Engagement and competence development of our employees	Diversity and Equal Opportunity; Non-discrimination, Training and Education.
	Responsible business practices in our own operations or with our business partners	Anti-corruption; Anti-competitive behavior; Diversity and equal opportunity; non-discrimination; Freedom of association and collective bargaining; human rights assessment; Public policy.

Material topics and their boundaries

GRI 102-47; GRI 103-1 MATERIAL TOPICS	GRI 103-1 TOPIC BOUNDARIES	KEMIRA DATA COLLECTION PRACTICES
Sustainable products and solutions (own material topic)	Kemira operations[1)]	Product applications are manually linked to product categories. Product sales data is extracted from Kemira's ERP system
Economic Standard Series		
Economic performance*	Kemira operations[1)]	Data is extracted from Kemira's ERP system
Anti-corruption	Kemira operations[1)]	Data is collected from each region, from Kemira's legal archive, and through notifications from Kemira's Compliance and Ethics Hotline.
Anti-competitive behavior	Kemira operations[1)]	Data is collected from each region, from Kemira's legal archive, and through notifications from Kemira's Compliance and Ethics Hotline.
Environmental Standard Series		
Materials	Kemira operations as covered by our ERP[2)]	Data is extracted from Kemira's ERP system.
Energy	Kemira manufacturing sites[3)]	Data is collected from each production site and consolidated at the Group level.
Water	Kemira manufacturing sites[3)]	Data is collected from each production site and consolidated at the Group level.
Emissions	Kemira manufacturing sites[3)]	Data is collected from each production site and consolidated at the Group level. Scope 3 emissions data is collected from Kemira's ERP system and the relevant organizational units. Default data and assumptions are as in the WBCSD Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain.
Effluents and waste	Kemira manufacturing sites[3)]	Data is collected from each production site and consolidated at the Group level.
Environmental compliance	Kemira manufacturing sites[3)]	Data is collected from each production site and consolidated at the Group level.
Supplier environmental assessment	Kemira suppliers	Harmony Contract Management Tool used to track suppliers' signing of Code of Conduct for BP.

Material topics and their boundaries

Social Standard Series		
Employment*	Kemira operations1)	HR data management system.
Labor/Management relations*	Kemira operations1)	HR data management system.
Occupational health and safety	Kemira operations1)	Synergy data management system. Data covers also contractors working at Kemira sites.
Training and education	Kemira operations1)	HR data management system.
Diversity and equal opportunities	Kemira operations1)	HR data management system.
Non-discrimination	Kemira operations1)	Data is collected from each region, from Kemira's legal archive, and through notifications from Kemira's Compliance and Ethics Hotline.
Freedom of association and collective bargaining	Kemira operations1)	Data is collected from each region, from Kemira's legal archive, and through notifications from Kemira's Compliance and Ethics Hotline.
Human rights assessment	Kemira operations1)	
Supplier social assessment	Kemira suppliers	Harmony Contract Management Tool used to track suppliers' signing of Code of Conduct for BP.
Public policy	Kemira operations1)	Data is collected from each region, from Kemira's legal archive, and through notifications from Kemira's Compliance and Ethics Hotline.
Customer health and safety	Kemira operations as covered by our ERP2)	Data is extracted from Kemira's ERP system and from R&D New Product Development process documentation, and from Kemira's legal archives.
Marketing and labelling	Kemira operations as covered by our ERP2)	Data is extracted from Kemira's ERP system and from PSRA4) documentation, and from Kemira's legal archives.
Socioeconomic compliance	Kemira operations1)	Data is collected from each region, from Kemira's legal archive, and through notifications from Kemira's Compliance and Ethics Hotline.

*) Not material GRI topic but reported because considered useful based on continuity.
1) Kemira's operations = All operations covered by Kemira's consolidation rules
2) Kemira's operations covered by ERP = All operations covered by both Kemira's consolidation rules and the company's Enterprise Resource Planning (ERP)
3) Kemira's manufacturing sites = All manufacturing sites covered by Kemira's consolidation rules.
4) PSRA Product Safety and Regulatory Affairs

ASSURANCE REPORT

GRI 102-56: External assurance

The corporate sustainability information presented in the sections GRI disclosures and Business Overview are externally assured by an independent third party. Information on the organization's policy and current practice with regard to external assurance can be found in the Assurance statement.

INDEPENDENT LIMITED ASSURANCE REPORT

To the Management of Kemira Oyj

At the request of the Management of Kemira Oyj (hereafter Kemira) we have performed a limited assurance engagement on the corporate sustainability information for the reporting period 1.1.–31.12.2019 presented in Kemira's Annual Report (hereafter corporate sustainability information).

Management's responsibility

The Management of Kemira is responsible for the preparation and presentation of the corporate sustainability information in accordance with the GRI Sustainability Reporting Standards, and Kemira's internal reporting guidelines (hereafter the reporting principles).

Assurance Provider's responsibility

It is our responsibility to present an independent conclusion on the corporate sustainability information based on our work performed. We do not accept nor assume responsibility to anyone else except to Kemira for our work, for the assurance report and for the conclusions that we have reached.

We have conducted the assurance engagement in accordance with the International Standard on Assurance Engagements (ISAE) 3000 'Assurance Engagements Other than Audits or Reviews of Historical Financial Information'. The ISAE 3000 standard requires compliance with ethical requirements as well as planning and performing the assurance engagement to obtain limited assurance on whether the corporate sustainability information has been prepared, in all material respects, in accordance with the reporting principles.

Assurance Provider's independence and quality assurance

We comply with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the IESBA (International Ethics Standards Board for Accountants). We apply ISQC 1 (International Standard on Quality Control) and accordingly maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Limitations of the Engagement

In a limited assurance engagement, the evidence gathering procedures are more limited than in a reasonable assurance engagement, and therefore less assurance is obtained than in a reasonable assurance engagement. The procedures selected depend on the Assurance Provider's judgment, including an assessment of the risks that the corporate sustainability information would not, in all material respects, comply with the reporting principles. We have planned and performed our engagement to obtain sufficient appropriate evidence on which to base our conclusion.

We have performed, among others, the following procedures:

- An update of our knowledge and understanding of Kemira's material sustainability reporting topics, organization and activities,
- An assessment of suitability and application of the reporting principles regarding the stakeholders' needs for information,
- Interviews with management to understand Kemira's corporate sustainability leadership,
- Interviews with personnel responsible for gathering and consolidation of the corporate sustainability information to understand the systems, processes and controls related to gathering and consolidating the information,

- Reviewing corporate sustainability data from internal and external sources and checking the data to reporting information on a sample basis,
- Performing recalculation of information and reviewing the underlying data which is the basis of narrative disclosures related to the data.
- Visited Joutseno and Helsingborg sites where we reviewed reporting practices

Our assurance report should be read in conjunction with the inherent limitations of accuracy and completeness for corporate sustainability information. This independent assurance report should not be used on its own as a basis for interpreting Kemira's performance in relation to its principles of corporate sustainability.

Conclusion

Based on our work described in this report, nothing has come to our attention that causes us to believe that the corporate sustainability information has not been prepared, in all material respects, in accordance with the reporting principles, or that the Information is not reliable, in all material respects, based on the reporting principles.

Helsinki, 12 February 2020

Ernst & Young Oy

Mikko Rytilahti Partner, Authorized Public Accountant	Jani Alenius Leader of Climate Change and Sustainability Services

GRI CONTENT INDEX

For an interactive version, please refer to the complete edition of the annual report.

GRI 102-55

Abbreviations

BO = Business Overview
CS = Corporate Sustainability
CG = Corporate Governance
FS = Financial Statements

Reporting claims

- The report is prepared in accordance with the GRI-standards (2016): core option
- Communication on Progress (COP) of the United Nations Global Compact

GRI STANDARD	DISCLOSURE	PAGE NUMBER(S)	UNITED NATIONS GLOBAL COMPACT
GRI 101: Foundation 2016 **General Disclosures**			
GRI 102: General Disclosures 2016	**Organizational profile**		
	102-1 Name of the organization	Kemira Oyj	
	102-2 Activities, brands, products, and services	BO 17–22	
	102-3 Location of headquarters	BO 4	
	102-4 Location of operations	BO 4	
	102-5 Ownership and legal form	BO 4	
	102-6 Markets served	BO 17–22	
	102-7 Scale of the organization	BO 4	
	102-8 Information on employees and other workers	BO 4 , CS 51–52	
	102-9 Supply chain	CS 24–26	Principle 8
	102-10 Significant changes to the organization and its supply chain	CS 65	
	102-11 Precautionary Principle or approach	BO 14–16, CS 9–11, 15	
	102-12 External initiatives	CS 9	
	102-13 Membership of associations	CS 10	
	Strategy		
	102-14 Statement from senior decision-maker	BO 2–3	Commitment to Global Compact
	102-15 Key impacts, risks, and opportunities	BO 14–16, CS 10, 66	
	Ethics and integrity		
	102-16 Values, principles, standards, and norms of behavior	BO 5. CS 9,28,29	Principle 6, 8
	102-17 Mechanisms for advice and concerns about ethics	CS 29	Principle 1, 6, 8

GRI STANDARD	DISCLOSURE	PAGE NUMBER(S)	UNITED NATIONS GLOBAL COMPACT
GRI 102: General Disclosures 2016	**Governance**		
	102-18 Governance structure	CS 11,14	
	102-19 Delegating authority	CS 14	
	Stakeholder engagement		
	102-40 List of stakeholder groups	CS 10	
	102-41 Collective bargaining agreements	CS 52	Principle 3
	102-42 Identifying and selecting stakeholders	CS 10	
	102-43 Approach to stakeholder engagement	CS 10	
	102-44 Key topics and concerns raised	CS 10	
	Reporting practice		
	102-45 Entities included in the consolidated financial statements	FS NOTE 6.2	
	102-46 Defining report content and topic Boundaries	CS 65	
	102-47 List of material topics	CS 65	
	102-48 Restatements of information	CS 67	
	102-49 Changes in reporting	CS 67	
	102-50 Reporting period	CS 67	
	102-51 Date of most recent report	CS 67	
	102-52 Reporting cycle	CS 67	
	102-53 Contact point for questions regarding the report	CS 67	
	102-54 Claims of reporting in accordance with the GRI Standards	CS 67	
	102-55 GRI content index	CS 73–80	
	102-56 External assurance	CS 71–72	
Material Topics			
SUSTAINABLE PRODUCTS AND SOLUTIONS	**Own material topic**		
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 17–20	
	103-2 The management approach and its components	CS 17–20	
	103-3 Evaluation of the management approach	CS 17–20	
Own KPI	Product sustainability	CS 13	

GRI STANDARD	DISCLOSURE	PAGE NUMBER(S)	UNITED NATIONS GLOBAL COMPACT
Material Topics GRI 200 Economic Standard Series			
ECONOMIC PERFORMANCE	**Not material but reported**		
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 30–31	
	103-3 Evaluation of the management approach	CS 30–31	
GRI 201: Economic Performance 2016	201-1 Direct economic value generated and distributed	CS 30–31	
	201-3 Defined benefit plan obligations and other retirement plans	FS NOTE 4.5	
	201-4 Financial assistance received from government	FS NOTE 2.2	
ANTI-CORRUPTION			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12, 28–29	
	103-3 Evaluation of the management approach	CS 28–29	
GRI 205: Anti-corruption 2016	205-1 Operations assessed for risks related to corruption	CS 32	Principle 10
	205-2 Communication and training about anti-corruption policies and procedures	CS 32	Principle 10
	205-3 Confirmed incidents of corruption and actions taken	CS 33	Principle 10
ANTI-COMPETITIVE BEHAVIOR			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12, 28–29	
	103-3 Evaluation of the management approach	CS 28–29	
GRI 206: Anti-competitive Behavior 2016	206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	CS 33	
GRI 300 Environmental Standards Series			
MATERIALS			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12, 28–29	
	103-3 Evaluation of the management approach	CS 24–26	
GRI 301: Materials 2016	301-1 Materials used by weight or volume	CS 34	
	301-2 Recycled input materials used	CS 34	Principle 7,8

GRI STANDARD	DISCLOSURE	PAGE NUMBER(S)	UNITED NATIONS GLOBAL COMPACT
ENERGY			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12, 36–37	
	103-3 Evaluation of the management approach	CS 9–12, 36–37	
GRI 302: Energy 2016	302-1 Energy consumption within the organization	CS 36–37	Principle 7,8
	302-3 Energy intensity	CS 36–37	Principle 8
	302-4 Reduction of energy consumption	CS 36–37	Principle 8, 9
WATER			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12, 43–44	
	103-3 Evaluation of the management approach	CS 9–12, 43–44	
GRI 303: Water 2018	303-1 Interactions with water as a shared resource	CS 43–44	Principle 7,8
	303-2 Management of water discharge-related impacts	CS 43–44	
	303-3 Water withdrawal	CS 43, 45	Principle 7,8
	303-4 Water discharge	CS 43,45	Principle 7,8
	303-3 Water consumption	CS 43,45	Principle 8
EMISSIONS			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12, 23	
	103-3 Evaluation of the management approach	CS 9–12, 23	
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	CS 40	Principle 7,8
	305-2 Energy indirect (Scope 2) GHG emissions	CS 40	Principle 7,8
	305-3 Other indirect (Scope 3) GHG emissions	CS 40–41	Principle 7,8
	305-4 GHG emissions intensity	CS 40	Principle 8
	305-5 Reduction of GHG emissions	CS 40	Principle 8, 9
	305-6 Emissions of ozone-depleting substances (ODS)	CS 42	Principle 7,8
	305-7 Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	CS 42	Principle 7,8

GRI STANDARD	DISCLOSURE	PAGE NUMBER(S)	UNITED NATIONS GLOBAL COMPACT
EFFLUENTS AND WASTE			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12	
	103-3 Evaluation of the management approach	CS 9–12, 47–48	
GRI 306: Effluents and Waste 2016	306-1 Water discharge by quality and destination	CS 43,45–46	Principle 8
	306-2 Waste by type and disposal method	CS 47	Principle 8
	306-3 Significant spills	CS 49	Principle 8
	306-4 Transport of hazardous waste	CS 49	Principle 8
ENVIRONMENTAL COMPLIANCE			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12	
	103-3 Evaluation of the management approach	CS 9–12	
GRI 307: Environmental Compliance 2016	307-1 Non-compliance with environmental laws and regulations	CS 50	Principle 8
SUPPLIER ENVIRONMENTAL ASSESSMENT			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12	
	103-3 Evaluation of the management approach	CS 9–12,26	
GRI 308: Supplier Environmental Assessment 2016	308-1 New suppliers that were screened using environmental criteria	CS 26	Principle 8
GRI 400 Social Standards Series			
EMPLOYMENT	**Not material but reported**		
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12,27	
	103-3 Evaluation of the management approach	CS 27–29	
GRI 401: Employment 2016	401-1 New employee hires and employee turnover	CS 53	Principle 6
LABOR/MANAGEMENT RELATIONS	**Not material but reported**		
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12	
	103-3 Evaluation of the management approach	CS 27–29	
GRI 402: Labor/Management Relations 2016	402-1 Minimum notice periods regarding operational changes	CS 54	Principle 3

GRI STANDARD	DISCLOSURE	PAGE NUMBER(S)	UNITED NATIONS GLOBAL COMPACT
OCCUPATIONAL HEALTH AND SAFETY			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12,21–22	
	103-3 Evaluation of the management approach	CS 9–12,21–22	
GRI 403: Occupational Health and Safety 2016	403-2 Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	CS 55	
TRAINING AND EDUCATION			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12, 27	
	103-3 Evaluation of the management approach	CS 9–12	
GRI 404: Training and Education 2016	404-1 Average hours of training per year per employee	CS 57	Principle 6
	404-2 Programs for upgrading employee skills and transition assistance programs	CS 57	
	404-3 Percentage of employees receiving regular performance and career development reviews	CS 58	Principle 6
DIVERSITY AND EQUAL OPPORTUNITY			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12, 27	
	103-3 Evaluation of the management approach	CS 9–12	
GRI 405: Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	CS 59–60	Principle 6
	405-2 Ratio of basic salary and remuneration of women to men	CS 61	Principle 6
NON-DISCRIMINATION			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12,27	
	103-3 Evaluation of the management approach	CS 9–12	
GRI 406: Non-discrimination 2016	406-1 Incidents of discrimination and corrective actions taken	CS 61	Principle 6
FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12,27	
	103-3 Evaluation of the management approach	CS 9–12	
GRI 407: Freedom of Association and Collective Bargaining 2016	407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	CS 62	

GRI STANDARD	DISCLOSURE	PAGE NUMBER(S)	UNITED NATIONS GLOBAL COMPACT
HUMAN RIGHTS ASSESSMENT			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12,28	
	103-3 Evaluation of the management approach	CS 62	
GRI 412: Human Rights Assessment 2016	412-1 Operations that have been subject to human rights reviews or impact assessments	CS 62	Principle 1
SUPPLIER SOCIAL ASSESSMENT			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12, 24–26	
	103-3 Evaluation of the management approach	CS 24–26	
GRI 414: Supplier Social Assessment 2016	414-1 New suppliers that were screened using social criteria	CS 25	Principle 2
PUBLIC POLICY			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12	
	103-3 Evaluation of the management approach	CS 28–29	
GRI 415: Public Policy 2016	415-1 Political contributions	CS 62	Principle 10
CUSTOMER HEALTH AND SAFETY			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12, BO14–15	
	103-3 Evaluation of the management approach	BO14–15	
GRI 416: Customer Health and Safety 2016	416-1 Assessment of the health and safety impacts of product and service categories	CS 63	
	416-2 Incidents of non-compliance concerning the health and safety impacts of products and services	CS 63	
MARKETING AND LABELING			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12, BO 14–15	
	103-3 Evaluation of the management approach	BO14–15	
GRI 417: Marketing and Labeling 2016	417-1 Requirements for product and service information and labeling	CS 63	
	417-2 Incidents of non-compliance concerning product and service information and labeling	CS 64	

GRI STANDARD	DISCLOSURE	PAGE NUMBER(S)	UNITED NATIONS GLOBAL COMPACT
SOCIOECONOMIC COMPLIANCE			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	CS 69–70	
	103-2 The management approach and its components	CS 9–12, BO 14–15	
	103-3 Evaluation of the management approach	BO 14–15	
GRI 419: Socioeconomic Compliance 2016	419-1 Non-compliance with laws and regulations in the social and economic area	CS 64	

KEMIRA is a global chemicals company serving customers in water intensive industries. We provide best suited products and expertise to improve our customers' product quality, process and resource efficiency. Our focus is on pulp & paper, oil & gas and water treatment. In 2019, Kemira had annual revenue of around EUR 2.7 billion and over 5,000 employees. Kemira shares are listed on the Nasdaq Helsinki Ltd.

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