kemira

Report 2018

Adding to your everyday

At Kemira, we use our chemistry to improve your everyday. It means making your packaging lighter and stronger, your paper towels softer, and your colors brighter. We make your drinking water safe, your wastewater clean, and by adding our chemistry, you get more out of energy resources.

By adding our expertise, your everyday business runs smoother and more efficiently. You add a committed partner who innovates together with you and creates solutions for a profitable, sustainable future. Our job is to add value while adding peace of mind. We call it adding to your everyday.

THE KEMIRA ANNUAL REPORT 2018 consists of four modules: **Business Overview**, **GRI Disclosures**, **Corporate Governance Statement**, and **Financial Statements**. This interactive PDF version of the Annual Report has been enhanced with a linked navigation to help you find the information you want more quickly. The table of contents, page references and URLs link to pages and sections within this document as well as to outside websites.

Content

All forward-looking statements in this report are based on the management's current expectations and beliefs about future events, and actual results may differ materially from the expectations and beliefs such statements contain.

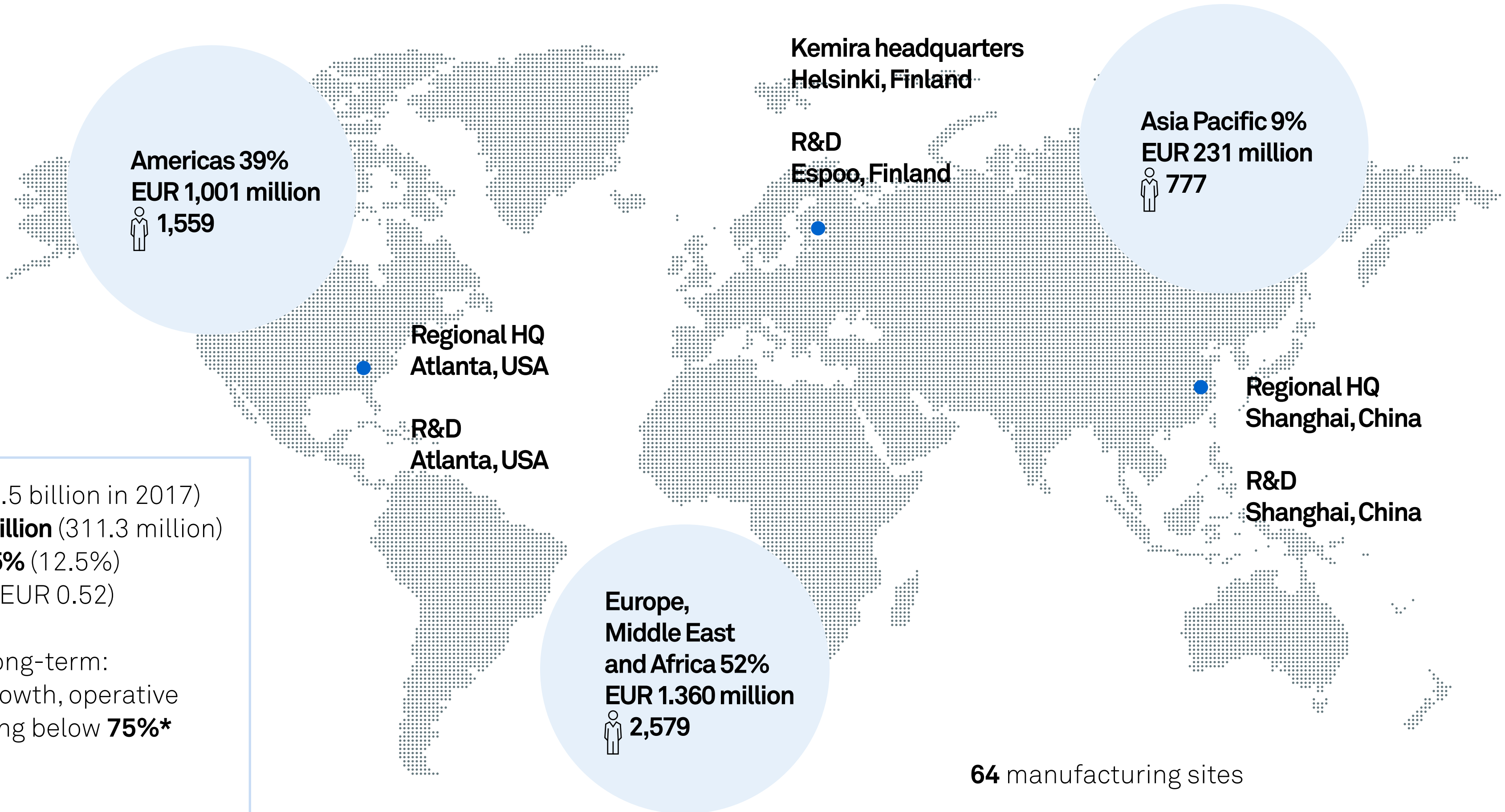
www.kemira.com

Kemira

Business Overview 2018

Key figures 2018

Kemira is a global chemicals company serving customers in water intensive industries. We provide expertise, application know-how and chemicals that improve our customers' product quality, process and resource efficiency. Our focus is on pulp & paper, oil & gas and water treatment. Kemira shares are listed in the Nasdaq Helsinki Ltd.



Revenue **EUR 2.6 billion** (EUR 2.5 billion in 2017)
Operative EBITDA **EUR 323.1 million** (311.3 million)
Operative EBITDA margin **12.5%** (12.5%)
Earnings per share EUR **0.58** (EUR 0.52)

Financial targets on mid- to long-term: Above-the-market revenue growth, operative EBITDA margin **15–17%**, gearing below **75%***

Total employees **4,915**

*Financial targets updated due to adoption of IFRS 16 accounting change.

OPERATIVE EBITDA 2018 EUR **323** million **12.5%** 2017: EUR 311 MILLION, 12.5%	REVENUE 2018 EUR **2.6** billion 2017: EUR 2.5 BILLION

CLIMATE CHANGE: KEMIRA CARBON INDEX 2018: **83** TARGET 2020: 80 2017: 85	WORKPLACE SAFETY, TRIF 2018: **3.5** TARGET 2020: 2.0 2017: 3.9	PRODUCTS DESIGNED FOR RESOURCE EFFICIENCY, % REVENUE 2018: **51%** TARGET 50% BASELINE AVERAGE 2016-2017 49%	EMPLOYEE ENGAGEMENT **71%** (67% 2015) **TARGET:** above the external norm

CEO Review

Building a solid business foundation to meet the changing needs of customers and society

At Kemira, we use our chemistry to improve your everyday. We add optimal quality, functionality and strength to paper and board products, we ensure safety and hygiene of water and food packaging, and we maximize yield from energy resources. Our strategic focus is on pulp and paper, water-intensive industries, municipal water treatment, and oil and gas industries.

In 2018, strong global demand helped us see solid organic growth and results. Our full year revenue for 2018 was EUR 2.6 billion (2017: 2.5) and we met our outlook for the year, with our operative EBITDA increasing to EUR 323 million (311 million) with a margin of 12.5% (12.5).

THE BUSINESS CONTEXT IS CHANGING

Megatrends are shaping the long-term market and segments that we operate in. These are urbanization and the growing middle class, scarcity of resources and tighter environmental regulations. In addition, rising living standards, and today's fast-paced lifestyles drive demand not only for more water and energy, but also for all kinds of packaging material. This is happening at a time when we are facing up to the reality of resource scarcity and the need to do more with less.

Similarly, the steady implementation of tighter limits on greenhouse gas emissions means that there is pressure on suppliers like us to reduce our own emissions. The world has also woken up to the challenge of tackling plastic waste. As regulators begin to set new standards and limits on the types of plastics that can be used, this creates new challenges for many industries, and packaging in particular. Improving resource efficiency – for both our customers and society as a whole – is a pressing need.

GENERATING CUSTOMER VALUE WITH SUSTAINABLE PRODUCTS AND SOLUTIONS

As a response to doing more with less in the changing business context, we have set a target to improve our ability to help our customers develop more sustainable products.

We have continued to develop digital service offerings for our customers. The combination of digital technologies and our industry-leading expertise provides us with powerful tools

"Improving resource efficiency - for both our customers and society as a whole - is a pressing need.

to differentiate Kemira from the competition. Our digital solutions not only help our customers ensure that their production process is, and will continue to be, for example, fully compliant with the latest water regulations, but also enables efficiency in terms of water, energy, and raw material usage.

We aim to have at least 50% of our revenue generated through products that improve customers' resource efficiency. In 2018, our performance is in line with this target and we are confident that customers value their relationship with Kemira, as evidenced by steady improvements in our Net Promoter Score, up by 10% to 33 (30).

HOLDING OURSELVES TO HIGH OPERATIONAL STANDARDS

In 2018, we have continued to make systematic improvements to maintain operational excellence, in the face of changing markets dynamics. This requires tight cost control and improved efficiency throughout our production network, in our operations and processes. To this end, integrated end-to-end production and supply-chain planning with an optimal distribution network, including a new operations model for road transportation in EMEA and North America, is underway. Furthermore, a harmonized, automated order-to-cash system is increasing efficiency and providing better visibility over orders and deliveries. We have also made improvements in low-profitability areas, including all product lines and regions.

Our globally integrated management system is providing full online visibility not only over our business, but also over the safety performance across our manufacturing sites, R&D centers and office locations. One of our sustainability commitments is to ensure responsible operations and supply chain. We aim to improve our workplace safety performance towards zero harm to people. In 2018 our performance improved (TRIF 3.5; 2017 TRIF 3.9), but we still need to focus more on developing our safety culture.

We are also making good progress in reducing our carbon emissions. Measured by Kemira carbon index with a target of 80 by 2020 (2012 = 100) we achieved 83 in 2018 mainly due to higher share of low carbon energy.

OUR PEOPLE AND INTEGRITY AS AN ASSET IN OUR FUTURE SUCCESS

We believe that our chemistry expertise is our biggest competitive advantage, so we need to be able to continue attracting, retaining, and developing the right mix of talent to further improve our globally diverse, result-oriented, and collaborative work environment. We also need to maintain our integrity and ensure compliance with the Kemira Code of Conduct in everything we do. Our targets in this area are to maintain an employee engagement index score that meets or exceeds the external industry norm, to increase leadership development activities, and to maintain the Integrity Index level above the industry benchmark. Last year our employee engagement was 71% (2 percentage points above the external norm), and integrity was 87% (10 percentage points above the external norm).

Our approach to sustainability is guided by the increasing expectations of our customers, investors, and other stakeholders, as well as by our own strategy and code of conduct, and internationally defined principles. Corporate responsibility is integrated into our strategy, and our Board of Directors engages in our sustainability performance in a consistent and regular manner.

A HISTORY THAT SHAPES OUR FUTURE

In 2020, Kemira will celebrate its 100 years anniversary. From a company that was originally established to meet needs for food security, we are now a global chemistry and technology leader meeting new societal challenges for water, energy and raw material efficiency. We believe that Kemira can succeed by helping our customers and stakeholders respond to these challenges, sustainably and together.

JARI ROSENDAL
PRESIDENT AND CEO

OUR PURPOSE

We enable our customers to improve their water, energy and raw material efficiency

GLOBAL TRENDS

Growing middle class and urbanization
Higher use of water, energy, tissue and board
E-commerce/online shopping

Scarcity of resources
New materials to enable circular economy
Material and resource efficiency

Regulation
Safe drinking water
More stringent wastewater discharge limits

OUR CUSTOMERS

Pulp & paper
Water treatment
Oil & gas

OUR OFFERING

We provide expertise, application know-how and chemicals that improve our customers' product quality, process and resource efficiency.

OUR VISION

Our vision is to be the first choice in chemistry for water intensive industries

OUR STRATEGY

Kemira is a great product company with chemistry and selling of chemicals at the core of our business. We win with best suited products and tailored services.

Our target is to grow above-the-market with an operative EBITDA margin of 15-17%*.

*Financial targets updated due to adoption of IFRS 16 accounting change.

OUR VALUES

We drive performance and innovation. We are dedicated to customer success. We care for people and the environment. We succeed together.

Business model

INPUTS

Equity:
EUR 1,203 million

Interest-bearing liabilities:
EUR 886 million

Cash:
EUR 145 million

Legal entities in 40 countries, 64 manufacturing sites

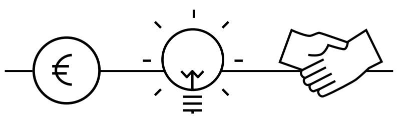
Key relationships:
customers, suppliers, distributors & agents, industrial partners for secondary raw materials

4,915 professionals worldwide

251 R&D experts in 3 centers

1,546 patents

Total materials purchased:
- → 3.3 million tonnes, 21% industrial by-products
- → Total energy purchased 4,971 GWh

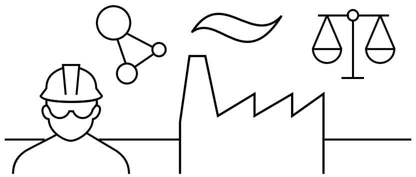


BUSINESS ACTIVITIES

Sustainable products and solutions:
- → Products and tailored services that improve our customers' product quality, process and resource efficiency.
- → Enabling our customers to improve their water, energy and raw material efficiency
- → Product stewardship: Ensuring safety of our products

Responsible operations and supply chain
- → Lowering costs & environmental impacts of our operations
- → Workplace safety
- → Sustainability in sourcing and supply chain management

People and integrity
- → Compliance to Kemira Code of Conduct
- → Employee engagement
- → Leadership development



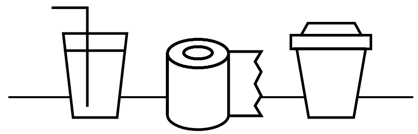
OUTPUTS

Market positions
- → Polymers #2
- → Coagulants #1
- → Sizing #1
- → Chlorate & peroxides #2

Revenue received from customers
- → EUR 2,593 million
- • Products designed for resource efficiency, 51% revenue

Services
- → Technical expertise, incl application support and total chemistry management
- → Process control & monitoring

Emissions and waste
- → Scope 1 + Scope 2 market-based (CO_2 eq.) = 936,000 tonnes
- → Total waste disposal 126,300 tonnes



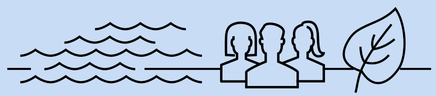
OUTCOMES

Customers
- → Product quality, product yield optimization, and minimizing environmental impacts
- → Process and energy efficiency
- → Water quality and regulatory compliance
- → Delivering customer value: NPS improved to 33 from 30 in 2017.

Society
- → Purified water, suitable for reuse
- → Sustainable use of biobased materials: recycled fibers
- → Less water and energy used in industrial processes
- → More efficient extraction and use of non-renewable resources: oil, minerals and water
- → Income taxes paid: EUR 23.6 million

Shareholders & lenders
- → EUR 114 million paid in dividends and interests in 2018

Employees
- → Engagement index above the industry norm



Global megatrends favor Kemira

MEGATREND	IMPACT	HOW KEMIRA BENEFITS FROM THE MEGATREND, FOR EXAMPLE
GROWING MIDDLE CLASS & URBANIZATION	Higher use of water, energy, tissue and board	Water reuse and treatment, absorbency and softness of tissue, light-weight high-quality board, energy savings in oil production are a few examples of how our chemistry can be utilized.
	Fast growth in e-commerce / online shopping	We are supporting production of light and strong packaging board in a growing market.
SCARCITY OF RESOURCES	New materials to enable circular economy	Single-use plastics can be partially replaced with fiber-based products where we play a key role with its pulp and paper chemistry.
	Higher efficiency in material and resources	With our chemistry, customers can enhance their resource efficiency: e.g. reuse of water, less energy needed in oil production, and lighter board, creating cost savings.
REGULATION	Safe drinking water	Our products are used to purify the equivalent of 320 million people´s annual water usage – the demand for safe drinking water is growing globally.
	More stringent wastewater discharge limits	Wastewater discharge limits are tightening and with our water treatment chemicals, customers can meet the limits.

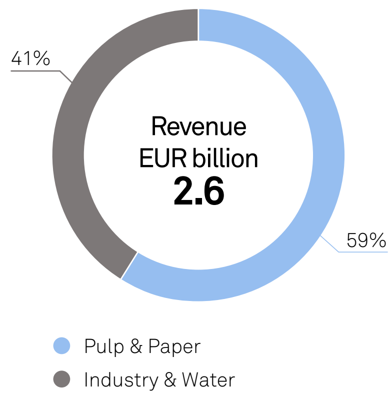
OUR BUSINESS FOCUS

In Pulp & Paper, we have unique expertise in applying chemicals and in helping pulp and paper producers to innovate and constantly improve their operational efficiency and reduce environmental impact. Kemira is the only company in the industry with a major global presence in pulp, packaging and paper chemicals. Thanks to an increased focus on this business, combined with strategic investments and selective acquisitions, we have been able to grow and become the global market leader in pulp, paper and packaging chemicals for industries.

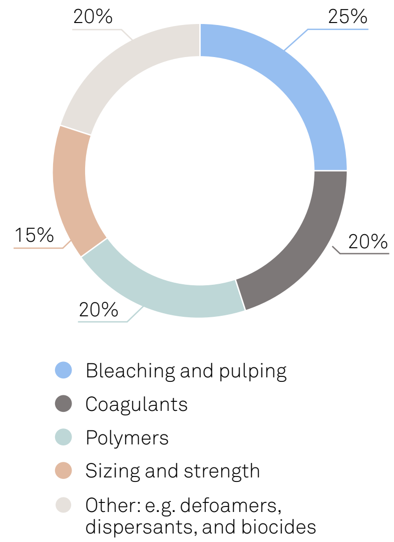
Industry & Water supports municipalities and water-intensive industries in the efficient and sustainable utilization of resources. In water treatment, we help in optimizing every stage of the water cycle. In Oil & Gas applications, our chemistries enable improved yield from existing reserves and reduced water and energy use.

From the product category point-of-view, we will continue to focus on four main areas: bleaching and pulping, sizing and strength, polymers, and coagulants. In these categories, being over 80% of our Group's revenue, we have application knowhow, enough scale and most importantly, growing customer demand. Our recent investments have been in the first three categories as we have added capacity to fuel growth.

SEGMENT SPLIT
%



PRODUCTS %
Revenue by product category rounded to the nearest 5%

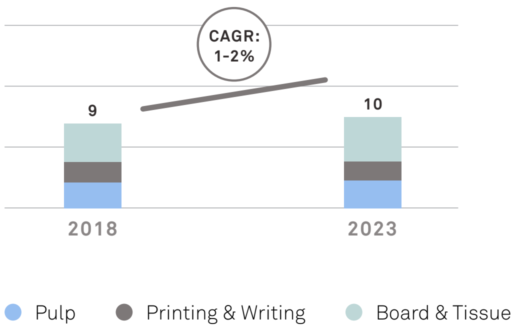


OUR PRESENCE IN GROWING MARKETS

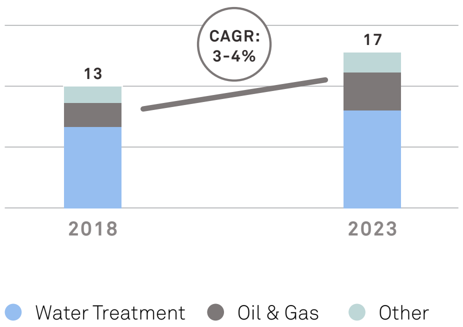
Both of our segments, Pulp & Paper and Industry & Water, operate in growing markets with a combined expected annual market growth rate of around 2-3%. Growth is driven by global megatrends such as growing middle class and urbanization, scarcity of resources, and regulation.

In 2018, organic growth for the Group was +7%, of which Pulp & Paper had +6% and Industry & Water had +9% organic growth, driven by both sales prices and volumes.

PULP & PAPER RELEVANT MARKET
EUR billion



INDUSTRY & WATER RELEVANT MARKET
EUR billion



Our strategy

We succeed with best-suited products and tailored services that improve our customers' product quality, process and resource efficiency. Our target is to grow above-the-market with an operative EBITDA margin of 15-17%*. The gearing target is below 75%.*

OUR STRATEGIC ENABLERS

CUSTOMER EXCELLENCE

Customer intimacy and ability to capture value
Optimized service levels

PRODUCT & SERVICE EXCELLENCE

Best suited products in terms of performance, efficiency and cost

Complemented with service and application knowledge

OPERATIONAL EXCELLENCE

Safe and efficient production, operations and processes

Reliable deliveries

Efficient sourcing

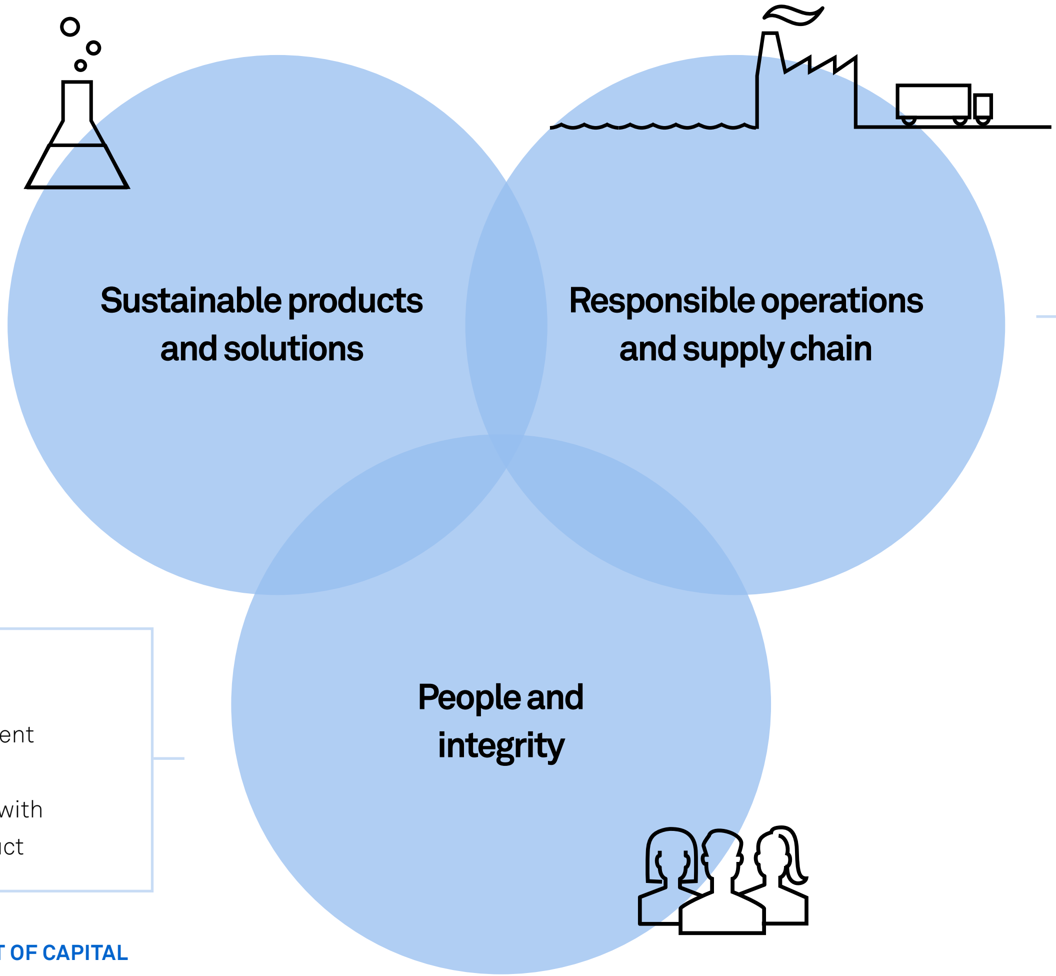
MARGIN EXCELLENCE

Improvement of profitability across all products and regions

Optimized output from the assets

*Financial targets updated due to adoption of IFRS 16 accounting change.

CORPORATE RESPONSIBILITY PROGRAM SUPPORTING VALUE CREATION



COMMITMENTS

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

DRIVING PROFITABLE GROWTH

COMMITMENTS

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

ENSURING COST EFFICIENCY

COMMITMENTS

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

LOWERING RISKS AND COST OF CAPITAL

Risks and opportunities

SUSTAINABLE PRODUCTS AND SOLUTIONS

OPPORTUNITIES	• Products to capitalize on global trends for recycling, e-commerce, growing middle class, regulation and scarcity of resources. • Products enabling our customers' product quality, process and resource efficiency. • Products addressing transition towards low-carbon and enabling circular economy. • Growing regulatory demands for stricter requirements for water treatment and to replace plastics in single-use products.
RISKS	• Disruptive technologies in our value chain, slow renewal of our product portfolio and lack of differentiation, and failure to commercialize new products and service concepts. • Regulatory constraints related to our products or use of our products are always evolving. The outcome of regulatory processes can lead to a ban, authorization or restrictions of use which can affect our ability to place products on the market.
MANAGEMENT APPROACH	We focus our innovation work on products addressing global trends and resource efficiency. This is based on systematic monitoring of market developments, competitive activities, and emerging technologies to enable responsiveness to changing customer needs. Our approach to collaborative product development is aimed to ensure a fast response to market needs and effective product launches through targeted marketing activities and training of sales. All our products, raw materials and intermediates need to comply with all applicable chemical regulatory requirements in the countries where we manufacture and / or sell chemicals. We actively monitor changes both in chemical legislation and in regulations relating to the use of our products by customers. Our Product Lifecycle Management process covers assessments on regulatory compliance, human health impact, safety issues and environmental impact in every lifecycle phase, from conception and development to manufacturing and sales, and finally to product elimination.

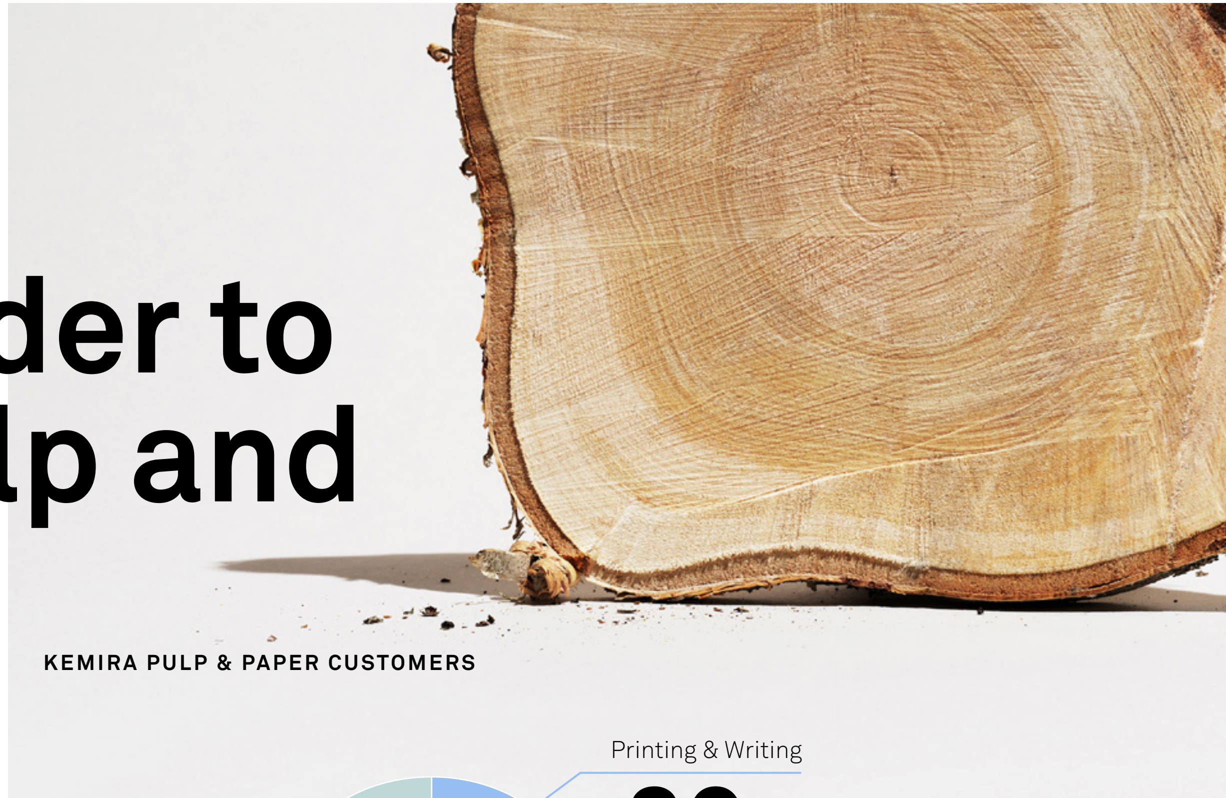
RESPONSIBLE OPERATIONS AND SUPPLY CHAIN

OPPORTUNITIES	• Digital solutions and streamlining of our business processes to improve our operational efficiency and asset utilization. • Our globally integrated management system provides a platform for change management and to quickly comply with new regulatory requirements and stakeholder expectations. • Raw material portfolio and energy mix development to reflect the needs of circular and low-carbon economy.
RISKS	• Chemical operations involve harmful and hazardous substances controlled with a wide range of physical and chemical parameters. Malfunction in processes can lead to incidents with possible impact on environment, employee health and safety, or our assets. This can happen due to human behavior, technical failures or process safety deficiencies. • Failure to develop safety management practices may increase risk of safety incidents causing supply and manufacturing disruptions. • Raw material supply disruptions due to force majeure situations at market or single source. • Failure by our vendors / suppliers to meet or comply with local environmental regulations. • Some of our major product lines are very energy-intensive with environmental impact through carbon emissions. There are regulations emerging which set a price for carbon emissions.
MANAGEMENT APPROACH	Our integrated management system provides a solid platform for systematic risk management and continuous improvements in competences, procedural, technical and physical protection mechanisms. We systematically develop and implement certifiable management systems for environment, occupational health and safety, quality, and energy management. Legal reviews of changing regulatory requirements are a part of management frameworks, and legal compliance issues are part of management system reviews. Our strategic sourcing through segmentation and the supplier management program aims to manage and develop performance and good governance throughout our supply chains, to reduce our risks related to the availability of raw materials, price volatility, and non-compliance, as well as to responsible business practices. Other measures include backward integration for critical raw materials and reducing the number of single / sole source situations, as well as effective contingency plans on core materials. We secure cost-effective energy supply though strategic investments and by hedging.

PEOPLE AND INTEGRITY

OPPORTUNITIES	• Ability to attract, retain and develop the right mix of talent, leveraging our strong employer brand and globally diverse, result orientated, and collaborative work environment. • Culture of talent management, performance management and development, and employee engagement. • Strong leadership competences, skilled technical expertise / industry knowhow and competent workforce.
RISKS	• Operating in 40 countries with sales to over 100 countries creates an environment characterized by multiple ethics and compliance risks, including risk of corruption, fraud, competition compliance, trade compliance and human rights. • Failure to enable safety culture development. • Non-compliance to Code of Conduct and related policies.
MANAGEMENT APPROACH	To implement our strategy, we must ensure that we have committed people, a strong leadership bench and the indispensable competencies in place to implement our strategy. We need to invest in a strong culture and commitment to people to retain our talents in a highly competitive employee market. • Continued emphasis on talent and succession development to ensure we have a strong platform for the future, through growing leadership and talents from within the organization. • Focus on performance management, employee engagement, learning and development, and building a strong employer brand which includes a market competitive employee brand promise. • Continued development of safety culture by whole organization. We continuously develop our management practices to ensure compliance with regulatory requirements and high ethical standards. We have a global Ethics & Compliance program in place to monitor and mitigate any observed risks or violations. • Continued communication and training for Code of Conduct and channels for feedback of violations.

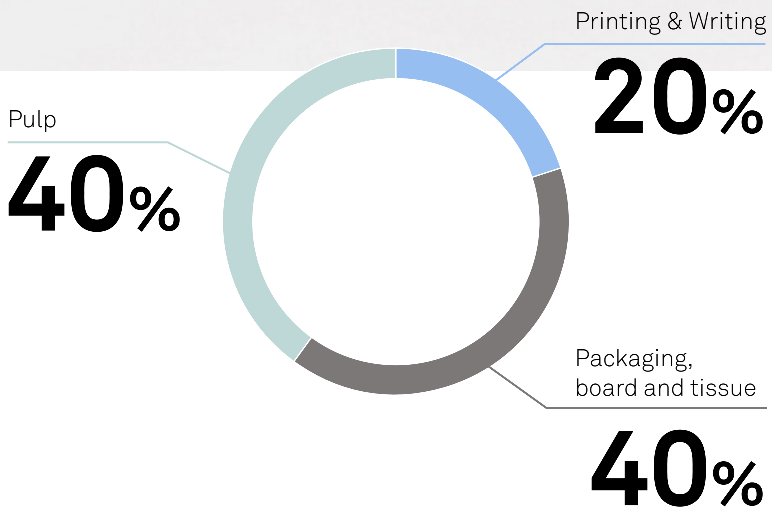
Pulp & Paper



Leading global chemical provider to the growing pulp and paper industry

Global megatrends, such as urbanization, a growing middle class, and sustainability, are shaping the pulp and paper industry. We work in close co-operation with industry-leading companies to address these trends, and the evolving needs and opportunities. Combining best-in-class application expertise, latest technologies for smart process management and a complete chemistry portfolio, we help customers improve their process efficiency, productivity and end-product quality

KEMIRA PULP & PAPER CUSTOMERS



KEMIRA'S EXPERTISE HELPS PULP AND PAPER PRODUCERS

PULP

The beauty of all kinds of paper grades begins with the right pulp quality. We work together with pulp producers to reach targeted pulp properties for strength, brightness and cleanliness. We can help producers improve total production efficiency and save costs. Our chemical island concept and in-house patented technology development show the commitment we have in the industry.

BOARD

Producing strong, light-weight, visually appealing, protective and safe packaging board requires a special expertise in chemistry. With the help of our broad experience, board producers can add value to board making and tailor products that meet the strictest of end-use demands – from food safety to brand appeal.

TISSUE

Tissue is largely driven by the end-user preferences for softness, strength, absorbency, flexibility and sustainability. It's extremely lightweight and produced at very high speeds, which makes runnability a challenge. We help tissue makers optimize the highest machine productivity, while at the same time enhancing sheet quality to fully meet end-user requirements.

PRINTING AND WRITING PAPER

Using deep paper-chemistry expertise, Kemira can help paper producers create profitable new grades for dynamic digital markets, and squeeze costs out of present paper-making operations.

PULP & PAPER – SOLID BUSINESS WITH A GOOD TRACK RECORD

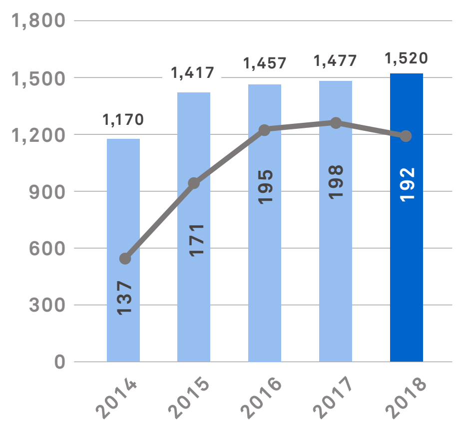
Growth in the use of pulp and paper chemicals is driven by higher production volumes for board and tissue grades. Kemira has unique expertise in chemical applications, and we are well-placed to help our pulp and paper producing customers to innovate and constantly improve their operational efficiency and end-product quality. We are working to support our customers through the transition to a bio-based economy, by enabling production with fewer inputs, lower environmental impact and a reduced water footprint.

MARKET ENVIRONMENT

#1 SOLENIS (PAPER)
#2 KEMIRA (PULP AND PAPER) M.S. ~16%
#3 NOURYON (PULP)
#4 ECOLAB (PAPER)
#5 KURITA (PAPER)

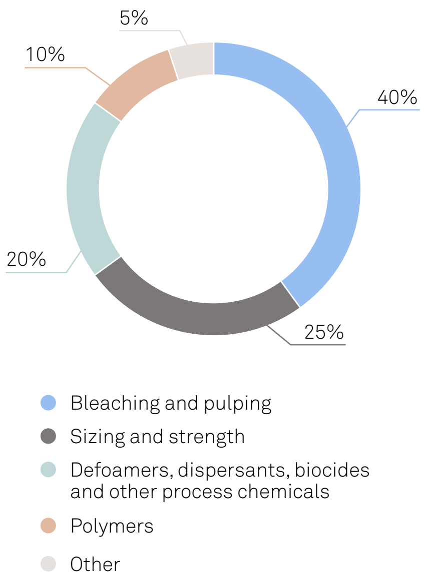
REVENUE AND OPERATIVE EBITDA

EUR million



REVENUE BY PRODUCT CATEGORY

%



CASE

E-COMMERCE DRIVES THE NEED FOR MORE PACKAGING MATERIAL

MEGATREND

- Growth in e-commerce drives packaging material production volumes

IMPACT ON PULP AND PAPER PRODUCERS

New board capacity regularly announced, especially in APAC and EMEA, for example

- Chinese Nine Dragon to add 3 million tonnes of packaging paper annual capacity
- APP to expand production in Guangxi, China by two new board machines with annual production of 1.8 million tonnes
- Hamburger Rieger to invest in Germany into a new containerboard machine with annual production of 0.5 million tonnes

IMPACT ON KEMIRA

- We serve board producers with process and functional chemicals
- We have strong references in conversions and new start-ups
- E-commerce is beneficial also for our pulp bleaching business, as pulp is the intermediate product for board

Industry & Water

Strong market positions in chosen categories

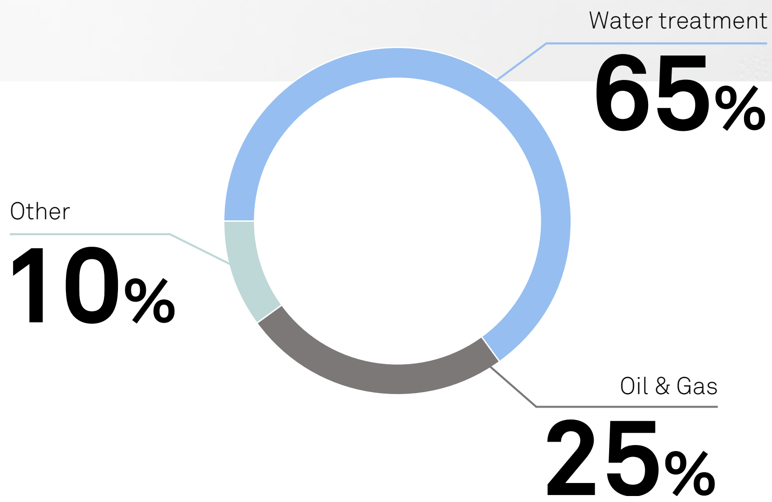
People are putting more demands on our water resources all the time. The more we produce, manufacture, consume, and dispose, the more water we use. How can we replenish the water cycle and keep up with our growing needs?

To help water treatment plant operators do this, while optimizing the Total Cost of Ownership, at Kemira we work in close co-operation with customers to reduce expenses for energy, labor and chemicals, while safely achieving the targeted water quality.

In oil and gas, our chemistries enable improved yield from existing reserves and reduced water and energy use.

Our deep R&D and application knowhow, secure supply network and complete technology portfolio are some of the reasons why we are a safe, efficient and sustainable partner for our customers.

INDUSTRY & WATER APPLICATION SPLIT



KEMIRA'S EXPERTISE HELPS CUSTOMERS IN THE INDUSTRY AND WATER SEGMENT

RAW WATER

Drinking water producers are faced with deteriorating quality of raw water, as well as tightening regulations. With Kemira's R&D and technology expertise, we can help to meet the requirements for safe drinking water. Our reliable and responsible supply chain ensures the peace-of-mind municipalities need for steady delivery.

WASTEWATER

Effective wastewater treatment plants are vital around the world. They face tight operating budgets, tighter regulation, and are constantly looking for ways to improve efficiency. Chemicals can bring substantial energy-savings in the wastewater treatment process. Using coagulants can save up to 50% of aeration energy in organic removal. Our unique range of water treatment expertise and products offer solutions to all wastewater challenges.

INDUSTRIAL WATER

Each process water system is different and requires customized products, depending on the water quality, branch of industry and process parameters. With the right technologies, water can be reused through several cycles. We help customers optimize the total cost of process, with lower energy and water consumption, and keep equipment running reliably with less maintenance required.

OIL & GAS

Oil and gas producers are searching for ways to produce more with less. Our operations in shale and conventional oil recovery are designed to help operators extract more production with less resources. In oil sands, Kemira's water treatment expertise and know-how from oil and gas customers creates a unique market position. We add value to customers' mandatory tailings treatment process.

INDUSTRY & WATER – STRONG GROWTH DRIVEN BY OIL AND GAS

The water treatment market is driven by regulation. We are the only manufacturer offering a full product portfolio of coagulants, polymers and other water treatment chemicals. This makes our position in the market unique.

In oil & gas, we are well-positioned in the shale industry and growing fast in water treatment related to unconventional oil recovery in Canada, and polymers used in Chemical Enhanced Oil Recovery (CEOR). In CEOR, we are currently investing in new polymer manufacturing capacity in Europe.

KEMIRA #1 IN COAGULANTS IN EUROPE AND NORTH AMERICA

Main competitors in coagulants:

- Feralco (Europe)
- Kronos (Europe)
- Chemtrade (North America)
- USAlco (North America)

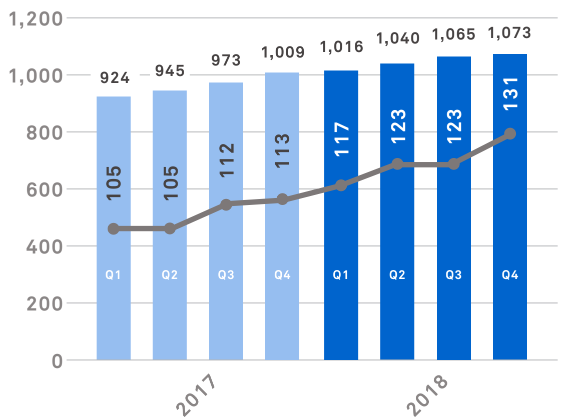
KEMIRA GLOBALLY #2 IN POLYMERS USED IN WATER TREATMENT AND OIL & GAS APPLICATIONS

Main competitors in polymers:

- SNF
- Solenis
- Solvay (only oil & gas)

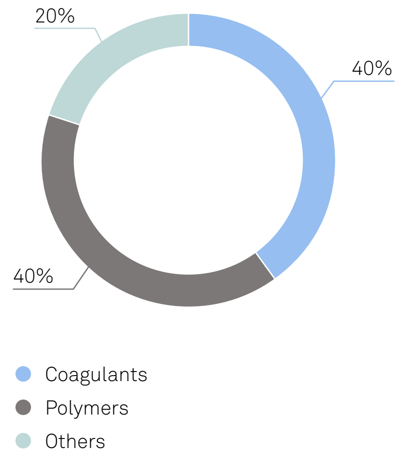
REVENUE AND OPERATIVE EBITDA ROLLING 12 MONTHS

EUR million



REVENUE BY PRODUCT CATEGORY

%



CASE

GLOBAL REGULATORY TRENDS FAVORABLE TO DEMAND FOR WATER TREATMENT CHEMICALS

DEMAND FOR WATER TREATMENT CHEMICALS IS EXPECTED TO INCREASE DUE TO THE FOLLOWING DYNAMICS:

- Water reuse is driven by resource efficiency requirements and water scarcity.
- More stringent discharge limits are expected to be imposed.
- Demand for better dewatering of sludge is increasing due to higher transportation costs and lack of land space for disposal.
- Phosphorus removal is becoming mandatory in many countries.
- Contaminants (pharmaceuticals, microplastics) are causing harm and successful removal requires careful use of water treatment chemicals.
- Prevention of pollution from storm-water overflows requires disinfection measures.

GRI Disclosures 2018

Corporate responsibility at Kemira

Corporate responsibility is our contribution to sustainable development and it is at the core of what we do. Our corporate responsibility program aims to support the execution of our strategy and long-term value creation.

CORPORATE RESPONSIBILITY PRIORITIES

Our corporate responsibility 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, product design for 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

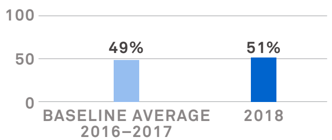
KPI'S, TARGETS AND PERFORMANCE 2018

Sustainable products and solutions

Product sustainability

IN PROGRESS

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.

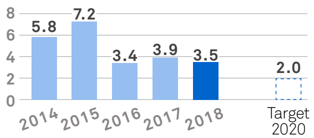


Responsible operations and supply chain

Workplace safety

IN PROGRESS

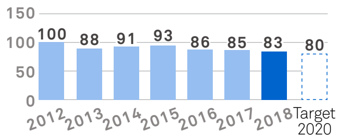
Achieve zero injuries on long term; TRIF* 2.0 by the end of 2020



Climate change

IN PROGRESS

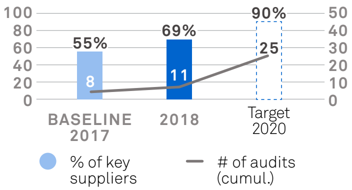
Kemira Carbon Index ≤ 80 by the end of 2020 (2012 = 100).



Supplier management

IN PROGRESS

% of direct key suppliers screened through sustainability assessments and audits (cumulative %). The target includes 5 sustainability audits for highest risk** suppliers every year, and cumulatively 25 by 2020.



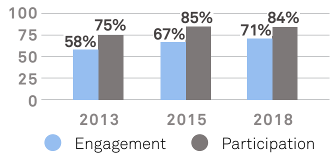
* TRIF = Number of Total Recordable Injury Frequency per million hours, Kemira + contractor, year-to-date
** Suppliers with lowest sustainability assessment score

People and integrity

Employee engagement index based on Voices@Kemira biennial survey

AHEAD OF TARGET

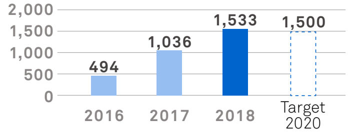
The index at or above the external industry norm. The participation rate in Voices@Kemira 75% or above.



Leadership development activities provided, average

AHEAD OF TARGET

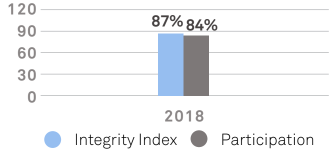
Two leadership development activities per people manager position during 2016-2020, the cumulative target is 1,500 by 2020.



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.



RECOGNITIONS 2018

CDP

Kemira received a B score in CDP's 2018 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 2018 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.

This most recent CDP disclosure round saw an increase of 11% in companies participating, taking the total to over 7,000 companies of which 97 were from the chemicals sector. This steady growth in CDP disclosure – now representing over 50% of global market capitalization – provides Kemira with a true benchmark of our performance.

ECOVADIS

Kemira has been awarded the Gold Recognition Level for the CSR (Corporate Social Responsibility) performance for the fourth 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 5% of the performers evaluated by 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 & human rights, Ethics, and Sustainable procurement.

Our management approach

Our corporate responsibility work is guided by our commitments to the Code of Conduct and internationally defined sustainability principles, stakeholder expectations, and by 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 Suppliers, Distributors and Agents (CoC-SDA).

The United Nations Global Compact is 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). Among the 20 largest institutional shareholders which own 58% (60%) of Kemira shares, 15 (16) investors have signed the Principles of Responsible Investment (PRI). These PRI signatories represent 19% (18%) 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 (6), events (20), newsletters (22) • Customer satisfaction measure Net Promoter Score has risen to 33 (30 in 2017) 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 portfolio management • Sustainability checks in New Product Development • 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 2018, we had 20 (23) roadshow days, and 280 (331) institutions were met in 150 (200) 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	• Understanding Kemira's strategy and future direction • New ways of working • Ways of developing competences for the future	• Strategy refresh communication and action planning • Performance and development discussions • Leadership development • Systematic competence development
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 Suppliers, Distributors and Agents • 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 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	• 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 and its member organization Chemical Industry Federation in Finland

GOVERNANCE

The Management Board approves our corporate responsibility 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, i.e. Business overview, GRI disclosures and non-financial information statement in the Board Review. Climate-related risks and opportunities are part of the overall governance.

Responsibilities for individual corporate responsibility targets are shared between the members of the Management Board.

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

CORPORATE RESPONSIBILITY 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 • Emissions based on purchased energy, Scope 2	• Segment Presidents • 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 in all levels of the organization from the 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 and 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 2018, we had 54 (60) internal and external management systems audits, including manufacturing sites, major office locations and R&D centers.

Integrated management system

Number of manufacturing sites certified in 2018

	EMEA	AMERICAS	APAC	Total %*
ISO 9001	32	15	6	**53 (85)**
ISO 14001	31	14	6	**51 (82)**
OHSAS 18001**	31	15	6	**52 (84)**

*Number of sites included in the scope was 62 in 2018. Two manufacturing sites were taken into operation in late 2018, and will be part of scope in 2019.

**One site had its HSE management system certified under ISO 45001:2018, the new and updated version of the OHSAS 18001.

KEY POLICIES RELATING TO CORPORATE RESPONSIBILITY 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.

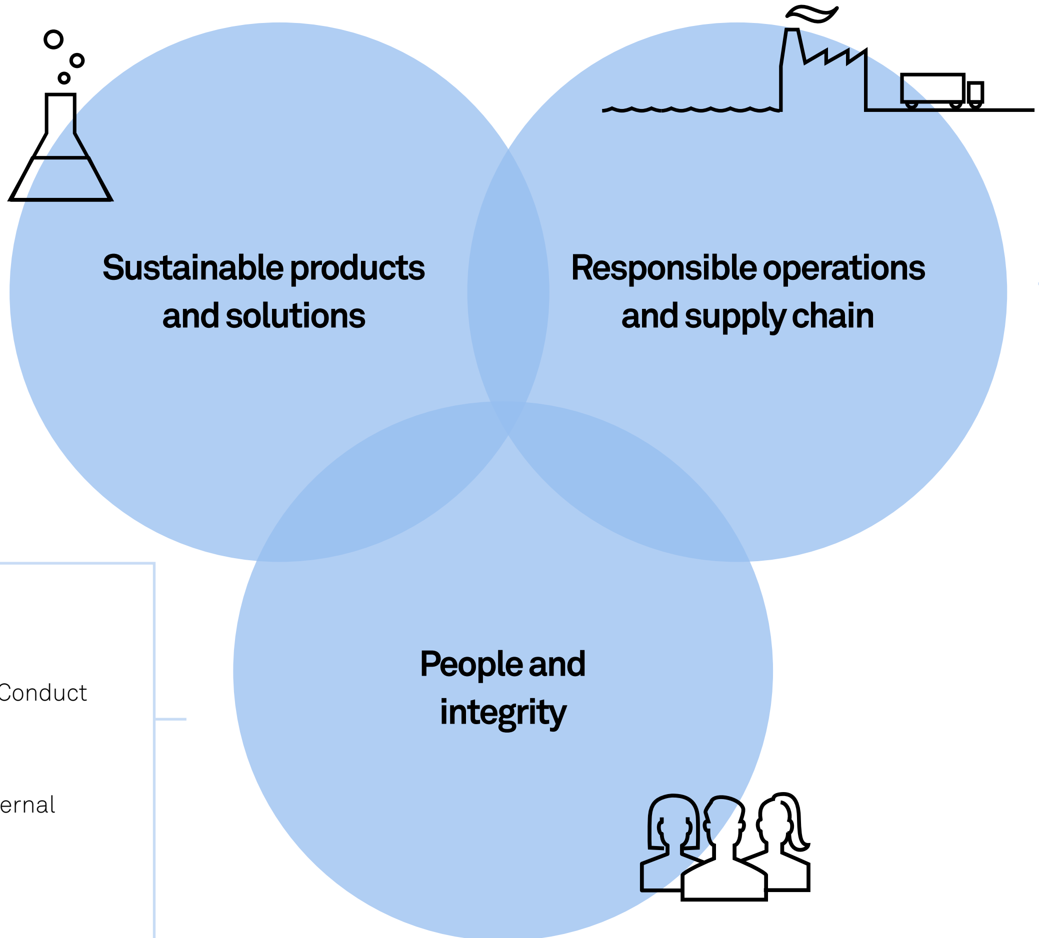
CORPORATE RESPONSIBILITY TOPICS	KEY POLICIES	POLICY OWNERS
Sustainable products and solutions	Product stewardship policy	Head of Product Stewardship and regulatory affairs
	Trade compliance policy	Head of Product Stewardship and regulatory affairs
	Intellectual Property Rights policy	Chief Technology 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

OUR FIVE YEAR CORPORATE RESPONSIBILITY APPROACH

The management of corporate responsibility priorities contribute to Kemira's strategy implementation.

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

KPI´S AND TARGETS
- At least 50% of our revenue is generated through products improving customers' resource efficiency



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

KPI´S AND TARGETS
- Workplace safety TRIF 2.0 by 2020, long-term target zero
- Carbon Index 80 by 2020 (Baseline 100 in 2012)*
- Supplier management; 90% of direct key suppliers screened through sustainability evaluation through assessments and audits (Baseline 55% in 2017)

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

KPI´S 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

*Our climate change target will be updated by 2020.

PRODUCT SUSTAINABILITY IN END-USE

MANAGEMENT APPROACH

At Kemira, we use our chemistry to add sustainabilty 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, and we sell products that are used in industrial scale processes mainly as processing aids.

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.

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

- Runnability of a paper and board machine
- Pulp processing
- Process water 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

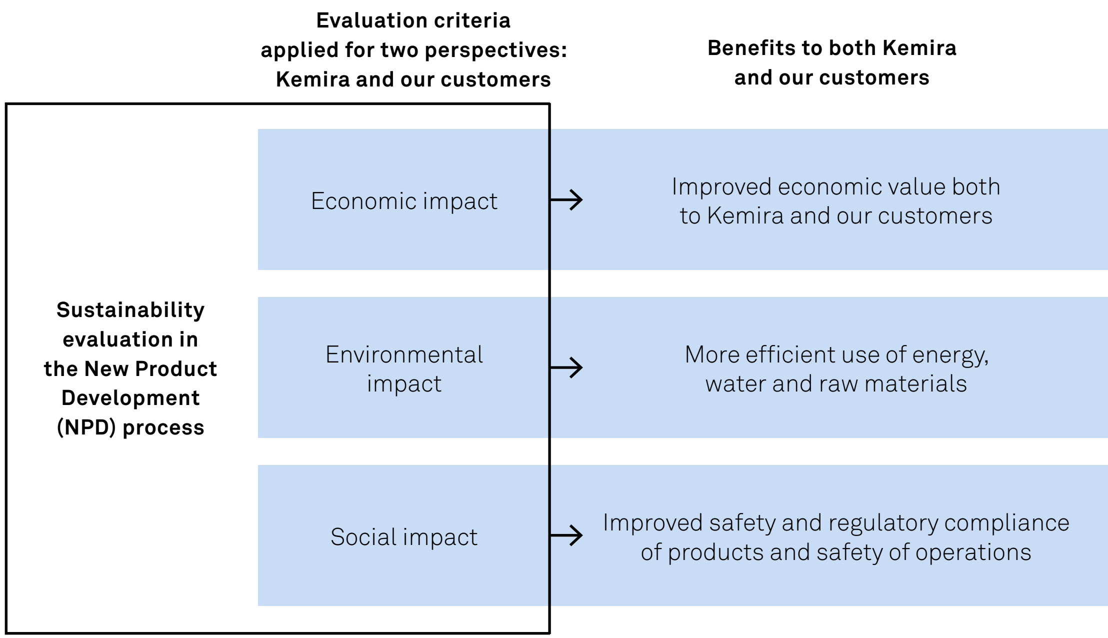
The product categories falling into the scope of the KPI are mainly coagulants, polymers and process chemicals.

Kemira's New Product Development (NPD) process follows a stage-gate model. The process starts with idea generation, and continues with five stages and decision gates until commercialization and the final closing of the project. 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 process also aims 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 2018

- Product sustainability KPI as approved by the Management Board in June 2018: Share of revenue from products used for use-phase resource efficiency, with a target: At least 50% of our revenue is generated through products improving customers' resource efficiency. Baseline average 2016-2017 was 49%, and result 2018 51%.
- We started 19 new and finalized 11 NPD projects in 2018. Out of these 19 new projects 15 are planned to increase resource efficiency. Commercialization of 10 projects started in 2018 and nine of them are designed to improve customers´ resource efficiency.

Sustainability evaluation throughout the New Product Development process



PRODUCT STEWARDSHIP

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 certifcation 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 fulfll 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 e.g. 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

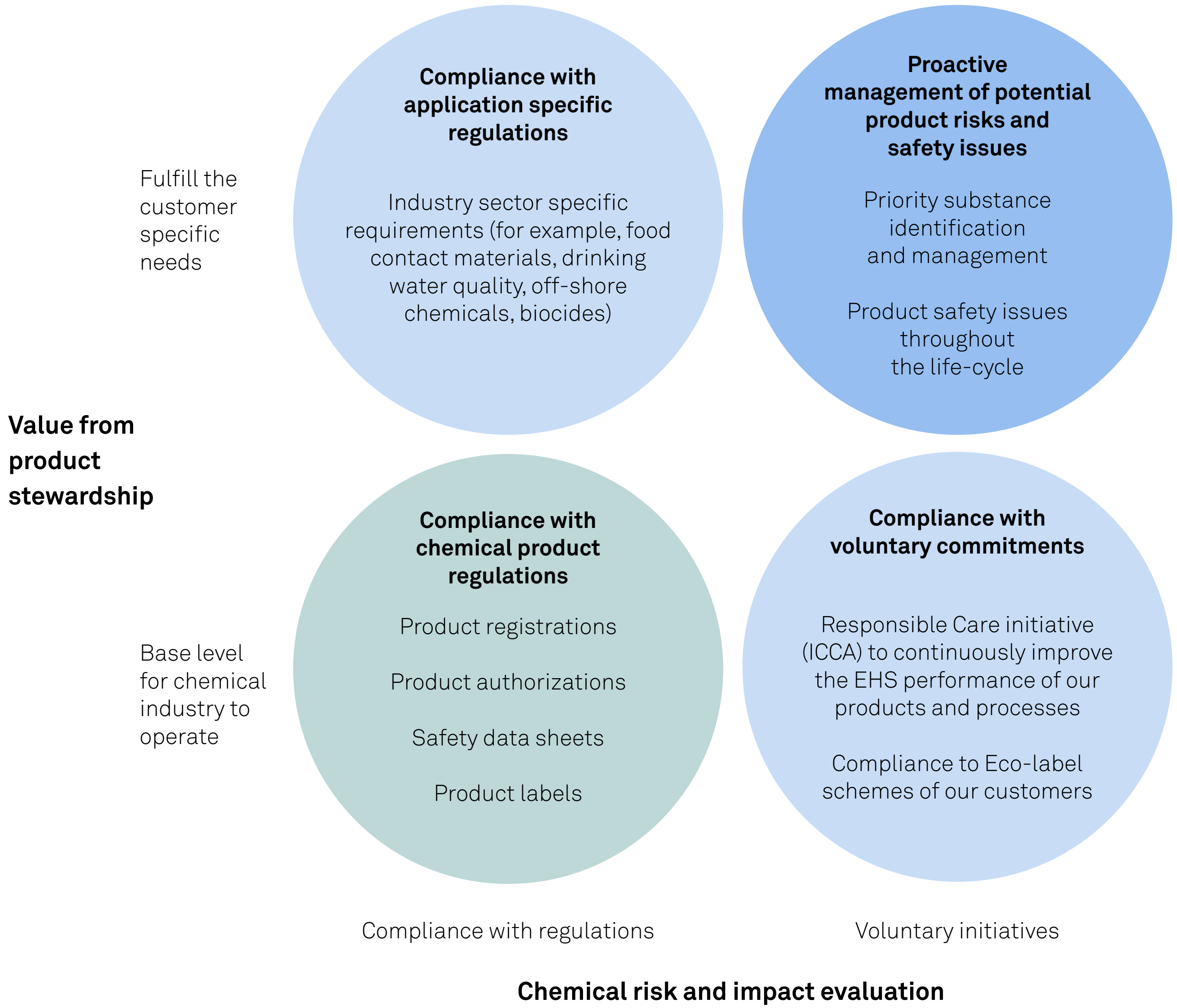
international legislation on the protection of animals and only if specifically required by legislation or for product safety purposes.

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.

RESULTS AND KEY ACTIVITIES IN 2018

- Kemira has successfully registered all substances that fulfilled the criteria to be EU REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) registered. Kemira has registered substances that it manufactures in or imports into the EEA (European Economic Area). Active monitoring is also in place to ensure that in the future any new substances manufactured or imported by Kemira are also REACH registered before they are placed on the EEA market.
- Kemira registered three PEC (Priority Existing Chemicals) substances based on our business needs in Korean REACH (K-REACH) first phase by the deadline in June 2018.
- 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.
- The upgraded Product Lifecycle Management (PLM) system was implemented to integrate 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



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 are based on proactive hazards management, implemention of identified improvement initiatives, and engaging with our employees and business partners to enforce preventive EHSQ behaviors in our operations.

All aspects of safety management are fundamental to our operations: process safety, chemical safety, workplace safety, transportation and loading / unloading 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 target for safety is “Zero harm for people” and to be in the “World Class” in workplace safety. We measure our safety performance with Total Recordable Injury Frequency (TRIF) covering Kemira employees and contractors. Our short term target is TRIF ≤ 2.0 by 2020.

RESULTS AND KEY ACTIVITIES IN 2018

In 2018, our safety performance was TRIF= 3.5 (3.9), a result that was an improvement over 2017.

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

- During 2018, we continued our work towards improving health and safety culture to prevent incidents and mitigating health and safety hazards.
- The Behavior Based Safety program (BBS) was initiated in 2016 and continued in 2018. The program covers all manufacturing sites in APAC, EMEA and SA. NA will have their refreshment program in 2019. The overall aim of this program is to improve safety performance by focusing on the behavior of people. Generally in industry, behavioral human factors are involved in more than 90% of incidents. Our safety development now needs a strong focus on behavior based safety, and people's hearts and minds to successfully work. Only in this way we can reach our target of 2.0 by 2020. The BBS program has now been active for more than a year in most of the EMEA manufacturing sites and we can see a clear decline in incidents in comparison to 2017.
- We implemented a comprehensive "Stop, Think, Act" safety campaign focusing on high-risk activities which have led to incidents in the chemical industry and also at Kemira. The campaign themes covered eleven critical topics in both the industrial and office environment, for example, machine safety, slip-trip-fall, working at heights, spill prevention, office safety and driving safety.
- We started the implementation of the "Life Saving Rules" campaign, based on six life critical standards, to enforce high-hazards work safety. These standards have been separated from the Permit to Work Standard, to deliver more visibility to these life critical activities.
- In 2018, all Kemira employees had safety as a bonus KPI, with one lagging indicator noting the total recordable incident frequency (TRIF) and one leading indicator noting hazardous conditions and activities reporting.

For more information, see GRI 403-2 on page 49.

CLIMATE CHANGE

MANAGEMENT APPROACH

Kemira is committed to climate protection and in 2014 introduced a target to reduce the carbon emissions generated directly and indirectly from our manufacturing. Our key performance indicator for climate change impact mitigation is expressed as the Kemira Carbon Index and the target is to reduce it by 20 percentage points by the end of 2020, compared to the baseline year of 2012.

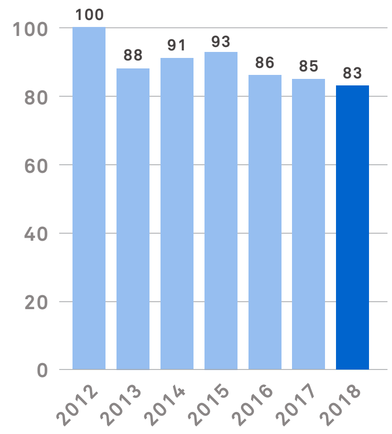
The key measures to reduce our carbon emissions include:

- Purchasing electricity and steam, which are generated using renewable, carbon-free and low-carbon-intensive energy sources
- Shifting our use of fuels towards less carbon-intensive energy sources
- Improving energy efficiency at our manufacturing sites

RESULTS AND KEY ACTIVITIES 2018

- Kemira Carbon Index: In 2018, the Kemira Carbon Index decreased to 83 (baseline year 2012: 100). We achieved a slight decrease in the Carbon Index compared to 2017, due to increased use of carbon neutral energy sources and the continuous implementation of energy efficiency projects
- Sodium chlorate manufacturing sites in Finland and the United States are the largest consumers of electricity. Finland counted for 46% (43% in 2017) and United States 33% (34%) of Kemira´s total purchased electricity during 2018. Due to the increasing carbon pricing mechanisms, such as the EU emission allowance system, there is greater volatility and price pressure on electricity. The 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 Spot-market. In other countries, energy is purchased from local suppliers, taking into account the favorability of the energy source.
- In 2018, we conducted an assessement of Kemira´s carbon and energy price risk in selected operations covering five largest manufacturing sites located in Finland, Sweden and United States. Carbon risk impact is mainly due to pass-through emission cost in EU.
- The share of carbon-free sources counted for approximately 60% of total fuel and energy purchased in 2018 mainly due to the high share of electrity from nuclear, hydropower and wind power in Finland.
- During 2018, Kemira received Guarantee of Origin certificates for 90,706 MWh (80,360 MWh 2017) 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 contributed to the carbon index improvement. Substantial energy savings (19,2 GWh/a) were achieved, major part in the EMEA sites. Energy efficiency improves carbon index with relatively small gradual steps.

KEMIRA CARBON INDEX
Based on Scope 1 and Scope 2 emissions



The Kemira Carbon Index measures our CO2 performance both on a consolidated basis and for individual manufacturing sites. It includes 14 large manufacturing sites covering approximately 90% of energy consumption (14 in 2017). The index covers the CO2 emissions of fuel consumption for direct energy production at our sites ("Scope 1" emissions), as well as emissions from purchased steam and electricity ("Scope 2"), but it excludes direct emissions from chemical processing and transportation (upstream/downstream). The index is independent of the impacts of any changes in production volumes, but may be affected by the product mix.

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 2018. 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 13,700 suppliers consisting of 1,700 Direct material suppliers and 12,000 Indirect suppliers. Despite the large number of suppliers, approximately 10% of all suppliers account for around 80% 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 sustainablity risk with our suppliers (sustainability assessments and audits).

Code of Conduct for Suppliers, Distributors and Agents (CoC-SDA)

- All of our suppliers must follow our Code of Conduct for Suppliers, Distributors and Agents (CoC-SDA) 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

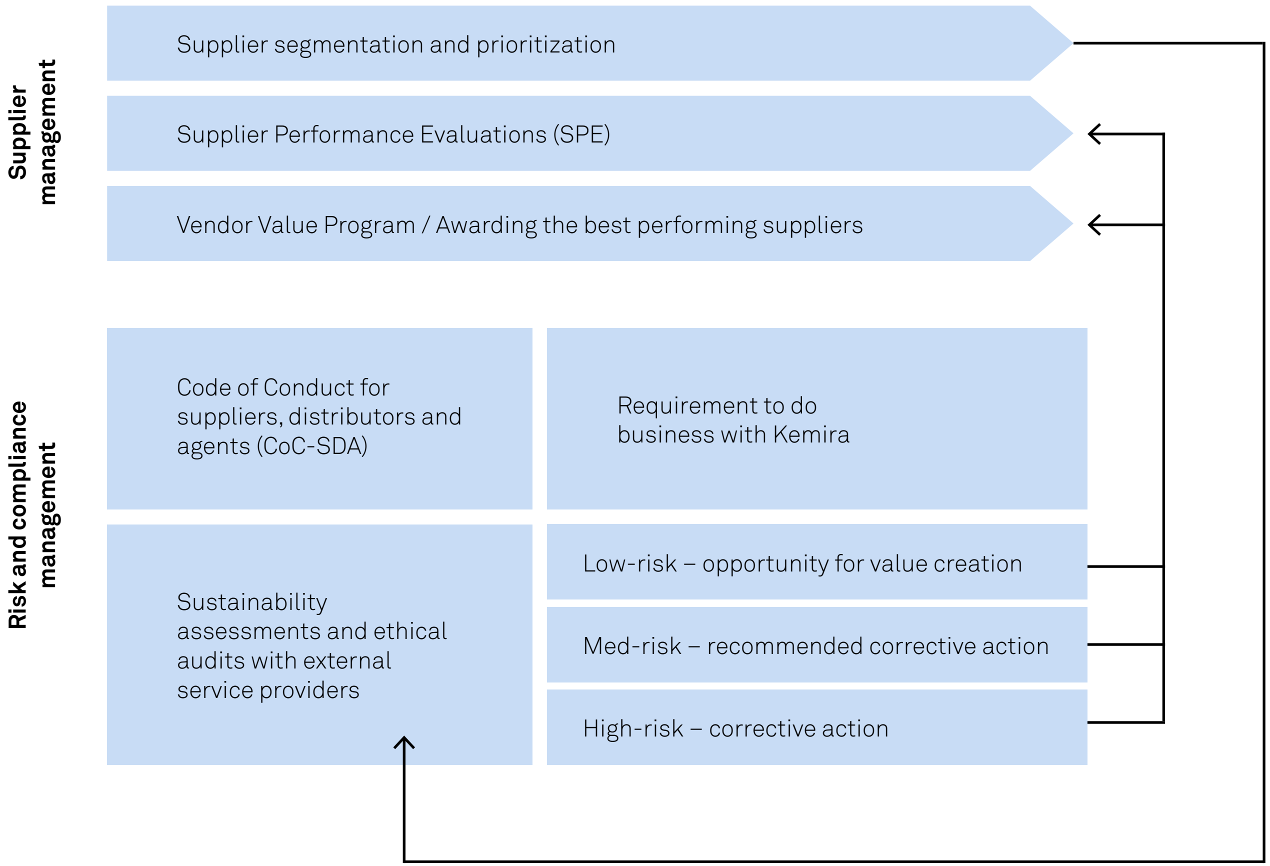
STRUCTURE OF KEMIRA'S SUPPLIER BASE	DIRECT MATERIALS	INDIRECT GOODS AND SERVICES
Number of suppliers, approximately	**1,700**	**12,000**
EMEA	800 (47%)	6,700 (56%)
Americas	600 (35%)	3,800 (32%)
APAC	300 (18%)	1,500 (13%)
Number of suppliers that form 80% of the category spend	**~200 (~13%)**	**~1,400 (~12%)**

process, to contracting where the commitment to our CoC-SDA is integrated in the contract templates. Finally, we have 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-SDA.
- 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 Ethical audits are conducted by an external auditor as an on-site audit. Audits´ 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



RESULTS AND KEY ACTIVITIES IN 2018

- Sustainability assessments: We continued enrolling new suppliers into our Sustainability program. A total of 167 (135) 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 68% of the reassessed suppliers were able to improve their score.
- In 2018, we conducted 3 Ethical audits (one follow-up and 2 new audits) with no business stopping results. Some of the common corrective actions were related to Management Systems (training, policy or documentation), Health and Safety (e.g. fire safety, building certificates), Wages and Working hours (minimum wage, holiday pay, working hours) and Business Ethics (policy, training). Some of the completed improvement actions were related to Human Rights (e.g. Policy), Management Systems (licenses), Health and Safety (fire safety, emergency lights and exists) and Wages and Working hours (minimum wages and time records).
- In 2018, as part of our Vendor Value Program, the second round of the Supplier Awards were given to the best performers based on excellence in operative performance, contractual commitment, and in value propositions.
- Quality audits: Large spend suppliers also undergo quality audits, which include management systems, workplace health and safety standards, production quality and supply security. In 2018, 25 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 talent management, leadership development, performance management and competence development, reward and recognition, and safety and well-being.

RESULTS AND KEY ACTIVITIES IN 2018

Employee engagement survey

Our Voices@Kemira 2018, biennial employee engagement survey, was conducted in April 2018. Employee Engagement was 71% vs. target 69%, 2%-p. above, and 4%-p. 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. Integrity is high at 87% versus the external norm 77%, which is 10%-p. above the external norm. Employee engagement trends have improved from 58% in 2013 and 67% in 2015 to a record high of 71% in 2018. During 2019, we will roll out more agile methods of getting employee feedback and employee engagement action planning. This will impact how we use external benchmark in the future.

Talent management and leadership development

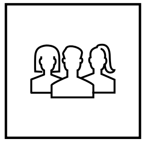
Our Talent Management process is well established, providing a structured way to identify and develop employees with potential for leadership positions globally. We continued to build a strong leadership bench to meet our business needs in relation to executing our strategy and driving our long-term 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 training. 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 2018, we were at 1,533 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, performance evaluation, competencies and development plans. This process is now well-established within Kemira as part of our leadership culture, and it forms the backbone of our management system. Our employees are encouraged to take an active role in their own learning and development which includes keeping their competencies up to date in relation to their work and their career aspirations at Kemira. As planned in our corporate development project, we designed an agile competence development model for Sales, Marketing and Customer Service, as a systematic approach to learning and development for customer-facing teams globally. This will be implemented further in 2019-2020. Digital competencies were developed by cross-functional teams and in the adoption of robotics process automation in Kemira.

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 Suppliers, Distributors and Agents (CoC-SDA) 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 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 responsibility(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 Suppliers, Distributors and Agents.

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 2018

- An extensive training and communication campaign about the Code of Conduct continued globally through 2018.
- A new online training course was launched to support ongoing training activities.
- The CoC-SDA was reviewed and a new version of it is in the process of being updated and approved.
- Privacy program focused on the EU's General Data Protection Regulation (GDPR). Data processing activities were extensively reviewed and documented, and a privacy impact assessment process was implemented. Privacy notices, data processing agreements and global privacy policy were created. A mandatory online training course on GDPR was assigned to over 300 Kemira employees who work in a role which involves processing of personal data, and general awareness-building was continued by providing easy-to-understand information packages on GDPR and privacy compliance to all Kemira employees.
- 11 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 5 cases were closed with merit.

CONCERNS OF ALLEGATIONS OF POTENTIAL CODE OF CONDUCT VIOLATIONS REPORTED IN 2018	NUMBER OF CASES	CASES CLOSED WITH MERIT	CASES CLOSED WITHOUT MERIT	OPEN CASES AS OF DEC 31, 2018
Cases reported via hotline	2	1	1	0
Cases reported via other channels	9	4	3	2
Total number of cases	**11**	**5**	**4**	**2**

CASES CLOSED WITH MERIT BY ISSUE CATEGORY	NUMBER OF CASES
Corruption and bribery	0
Anti-competitive behaviour	0
Employee relations and fair treatment	3
Harrassment	0
Transactions and company records	2
GRAND TOTAL	**5**

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 123 million (118 in 2017).

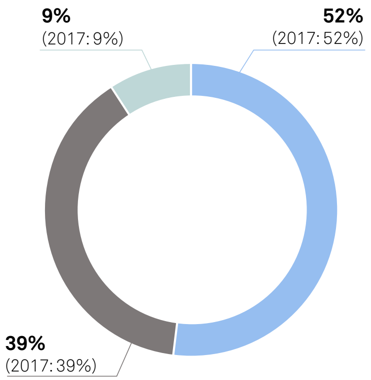
Economic value, cash flow based

STAKEHOLDER	ECONOMIC VALUE, EUR MILLION	2018	2017	2016	2015	2014
	Direct economic value generated: Revenues					
Customers	Income from customers on the basis of products and services sold, and financial income	2,614	2,453	2,386	2,350	2,100
	Direct economic value distributed					
Suppliers	Payments to suppliers of raw materials, goods and services	2,001	1,831	1,701	1,709	1,684
Employees	Employee wages and benefits	352	362	364	356	283
Investors & lenders	Dividends, interests paid and financial expenses	114	117	114	113	112
Government & Public sector	Corporate income taxes	24	25	23	12	33
	Economic value retained	**123**	**118**	**184**	**160**	**-12**

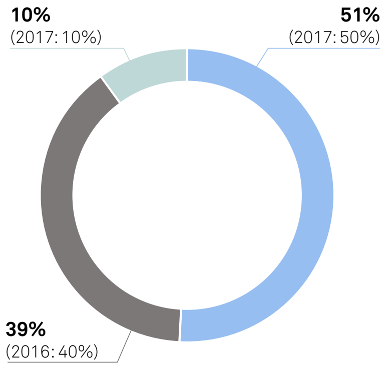
Community investments were EUR 0,1 million in 2018 through sponsoring and local community participation

Economic value distributed by region

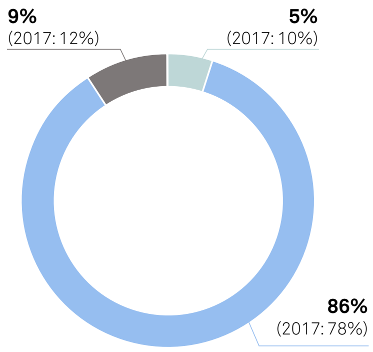
REVENUE BY CUSTOMER LOCATION %



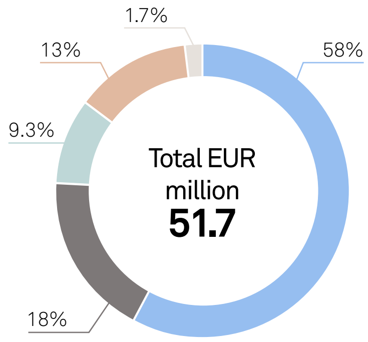
PAYMENTS TO SUPPLIERS OF RAW MATERIALS, GOODS AND SERVICES
by region %



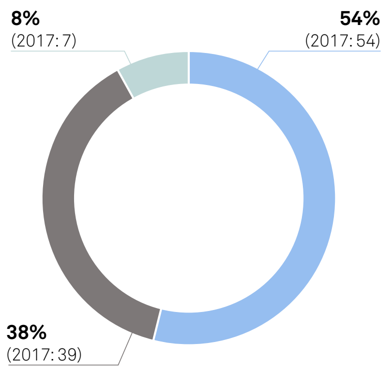
CORPORATE INCOME TAXES
by region %



ESTIMATED TAXES BORNE 2018
EUR million and %

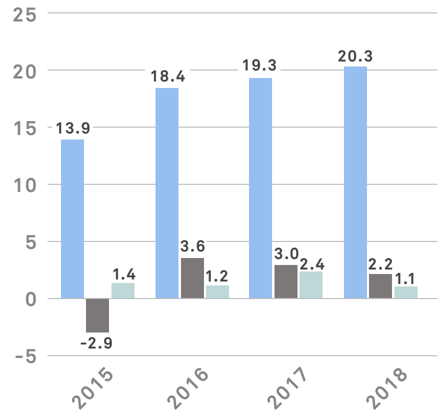


EMPLOYEE WAGES AND BENEFITS
by region %



- EMEA
- Americas
- APAC

CORPORATE INCOME TAXES
EUR million



- EMEA
- Americas
- APAC

In 2015, Americas was refunded the overpaid taxes of 2014.

- Corporate income taxes (excluding deferred taxes)
- Customs duties
- Property taxes
- Waste, energy and excise taxes
- Cost of indirect taxes

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 2017 and 2018. No significant risks related to corruption were identified through ethics and compliance risk assessment or internal audits in 2018.

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 Suppliers, Agents and Distributors (CoC-SDA) in their business activities with Kemira. The CoC-SDA states that Kemira expects its business partners to adhere to local legislation and avoid corruption in all its forms. We aim to communicate the CoC-SDA 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-SDA as part of the Kemira general terms of purchase on the back the Purchase Order. Our anti-corruption policy has been communicated to all of them through the CoC-SDA.

		NUMBER OF PERMANENT EMPLOYEES, NOT ABSENT	NUMBER OF EMPLOYEES RECEIVED TRAINING ON ANTI-CORRUPTION	% OF EMPLOYEES RECEIVED TRAINING ON ANTI-CORRUPTION
Americas	White collars	875	842	96
	Blue collars	676	0	0
APAC	White collars	443	410	93
	Blue collars	329	0	0
EMEA	White collars	1,577	1,506	95
	Blue collars	931	0	0
TOTAL		**4,831**	**2,758**	**57**

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	7,500	7,500	100%
Americas	4,400	4,400	100%
APAC	1,800	1,800	100%
TOTAL	**13,700**	**13,700**	**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 2018.

ANTI-COMPETITIVE BEHAVIOR

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

In 2018, 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, three class action lawsuits (only two active) and ten individual suits have been filed during 2015–2018, based on alleged violations of anti-trust laws relating to the sale of certain water treatment chemicals. In those lawsuits, Kemira has been named as a defendant among other defendants. The ten individual legal suits are opt-out suits, whereby the plaintiffs opted out of the direct liquid aluminate sulfate class actions. According to Kemira's assessment, all of these class actions and individual lawsuits against Kemira lack merit.

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 2018, approximately 21% (23% in 2017) 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	2018	2017*	2016	2015	2014
TOTAL MATERIALS USED	**301-1**	**3,329**	**3,510**	**3,536**	**3,293**	**3,276**
Non-renewable materials	301-1	3,268	3,448	3,458	3,220	3,217
Renewable materials	301-1	0,061	0,062	0,078	0,072	0,059
Share of renewable materials, %	301-1	1.8%	1.8%	2.2%	2.2%	1.8%
RECYCLED INPUT MATERIALS USED Industrial by-products and recycled material from external partners	301-2	0,710	0,799	0,945	0,904	0,897
Share of recycled materials, %	**301-2**	**21.3%**	**22.8%**	**26.7%**	**27.5%**	**27.4%**

*Data corrected due to more acccurate information available

CLIMATE CHANGE: ENERGY AND GREENHOUSE GAS EMISSIONS

Energy balance

Fuel 850 (852) GWh
- Renewable 0 (0)
- Non-renewable 850 (852)

Heat 675 (727) GWh
- Renewable 407 (404)
- Non-renewable 268 (323)

Electricity 3,446 (3,322) GWh
- Renewable 887 (855)
- Non-renewable 2,560 (2,467)

Total fuel and purchased energy input 4,971 (4,901) GWh
- Renewable 1,294 (1,259)
- Non-renewable 3,678 (3,642)

Energy consumption 4,443 (4,421) GWh

Heat sold Off-site 448 (401) GWh

Electricity Sold off-site 80 (78) GWh

ENERGY CONSUMPTION BY GEOGRAPHY IN 2018

Finland **46%** USA **28%** Other countries **26%**

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 10% of our total sourcing spend. By continually improving energy efficiency at manufacturing sites, we are consistently reducing our energy usage and equivalent costs.

In 2018, our operations in Finland accounted for 46% of our total energy consumption. The USA accounted for 28%, and other countries 26%.

Approximately 90% 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 69% 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. The global high demand for pulp increased the need for sodium chlorates as pulp bleaching agents, and contributed to the maintaining of our high level of investments in chlorate production.

ENERGY BALANCE, GWh	GRI disclosure	2018	2017	2016	2015	2014
TOTAL FUEL AND PURCHASED ENERGY INPUT		**4,971**	**4,901***	**4,731***	**4,144***	**4,124***
Consumed fuel as energy source		850	852*	897	582*	542
Non-renewable	302-1a	850	852*	897	582*	542
Renewable	302-1b	0	0	0	0*	0
Purchased electricity	302-1c	3,446	3,322	3,135*	2,935	2,828*
Non-renewable		2,560	2,467	2,573*	2,301	2,288*
Renewable		887	855	562*	634	541*
Purchased heat and steam	302-1c	675	727	699	627	754*
Non-renewable		268	323	311	262	150*
Renewable		407	404	430	365	603*
TOTAL FUEL AND PURCHASED ENERGY INPUT BY SOURCE	**302-1a, b**	**4,971**	**4,901***	**4,731***	**4,144***	**4,124***
Non-renewable		3,678	3,642*	3,781*	3,137*	2,980*
Renewable		1,294	1,259	950*	1,007*	1,144*
TOTAL ENERGY SOLD		**528**	**479***	**492***	**465***	**438***
Heat[1] sold off-site	302-1d	448	401	414	390	366
Electricity sold off-site	302-1d	80	78**	78**	76**	72**
TOTAL ENERGY CONSUMPTION[2]	**302-1e**	**4,443**	**4,421***	**4,239***	**3,679***	**3,686***
CHANGE IN TOTAL ENERGY CONSUMPTION[3]	**302-4**	**22**	**183***	**560***	**-7***	**-400***
Production volume, 1,000 tonnes		5,310	5,164***	5,028	4,845*	4,587
ENERGY INTENSITY, GWh per 1,000 tonnes of production[4]	**302-3**	**0.8**	**0.9***	**0.9**	**0.8**	**0.8**

* Minor updates to data were provided by sites during 2018 data collection.
** Values were adjusted due to information obtained from one site that did not previously identify electricity sold off-site.
*** Value was adjusted due to one site that over-reported its production data.

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. The primary reason for the increase is the increased production volume.
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 2018, 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 2017-2018, we empowered 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, over 20 implemented energy savings projects have been reported to the National Energy Authority (”Energiavirasto”).

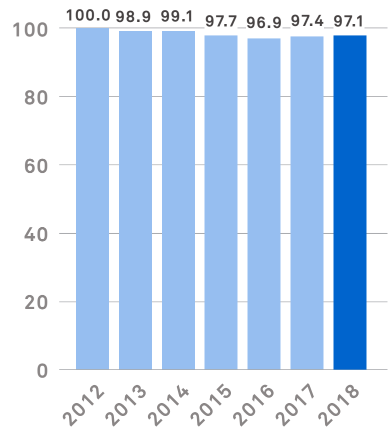
Our energy efficiency measures and activities have a special focus on sites, which have the highest energy consumption. Site-specific energy efficiency targets are defined for the largest energy consuming sites, based on energy consumption baseline data, the findings of E3 Energy Reviews, and the availability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

In 2018, 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 2018 through the implementation of 25 projects (23 in 2017) across Kemira’s operations. The resulting energy savings totaled 19,175 MWh (16,296 MWh in 2017) with cost savings of EUR 0.6 million (EUR 0.6 million in 2017). The cumulative cost savings that were achieved through the implementation of 505 such initiatives completed globally since 2010, now total EUR 10.4 million.

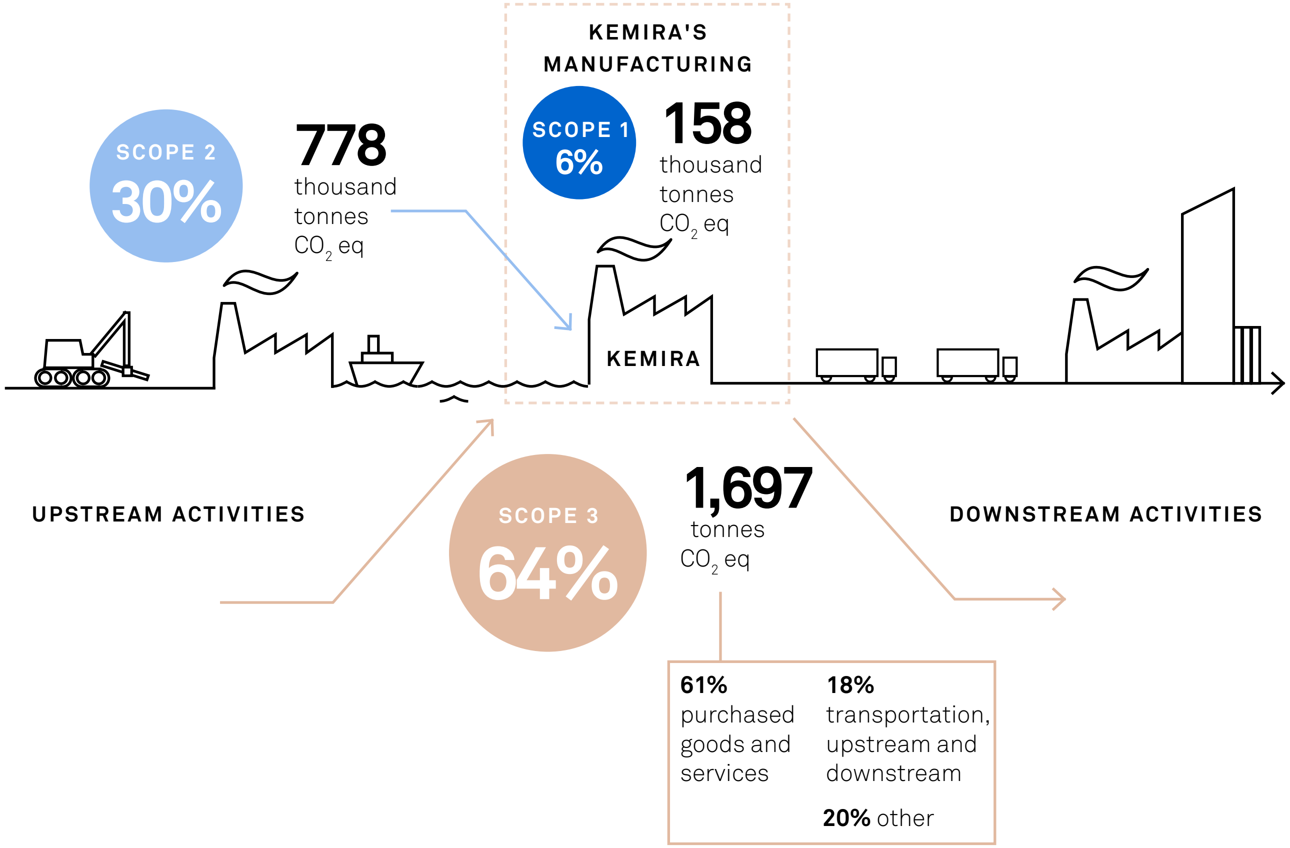
Our Energy Efficiency Index enables us to monitor the trend of energy efficiency improvement on a consolidated basis.

KEMIRA ENERGY EFFICIENCY INDEX



The Kemira Energy Efficiency Index measures the ratio of energy use and production normalized to a 2012 benchmark for our 14 large manufacturing sites covering approximately 90% of energy consumption (14 in 2017). The index is not affected by changes in production volumes but may be affected by the product mix.

Greenhouse gas emissions



- **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 2018
Scope 1 and Scope 2, market-based

Finland **41%** USA **41%** Other countries **17%**

Kemira's GHG emissions are primarily carbon dioxide (CO2), and negligible emissions of methane (CH4) and nitrous oxide (N2O). Kemira estimates GHG emissions using factors in terms of CO2 equivalent (CO2eq.) and does not specifically estimate and report mass emissions of CH4 and N2O since CO2 comprises over 99% of CO2eq. 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 carbonate

Indirect (Scope 2) GHG emissions include, but are not limited to, the CO2 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 2018 were consistent with 2017 emissions despite an increase in production compared to 2017. Kemira maintained emissions at the 2017 levels through the use of less carbon-intensive fuels where possible.

Scope 2 emissions also remained consistent with 2017 levels due to continued improvements in energy efficiency and a higher share of purchased energy with lower GHG emissions levels (renewable sources) compared to 2017.

Scope 3 emissions in 2018 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 61% (50%), and transportation and distribution emissions (upstream and downstream) 18% (32%) of our Scope 3 emissions. Waste generated and transported by our plants increased to 5% (4%) of overall Scope 3 emissions.

The overall GHG emissions intensity is consistent with historical levels despite continued increases in production (3% increase in production compared to 2017, and a 16% increase in production compared to 2014).

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	2018	2017	2016	2015	2014
TOTAL GHG EMISSIONS[1]		**2,633**	**2,872***	**2,684***	**2,665***	**2,517***
Direct (Scope 1) GHG emissions[2a]	305-1	158	153*	162*	169	144
Change		5	-9	-7	25	7
Biogenic Direct (Scope 1) GHG emissions[2b]	305-1c	0	0	N/A	N/A	N/A
Change		0	N/A	N/A	N/A	N/A
Energy indirect (Scope 2) emissions: market-based[3a]	305-2	778	799*	792*	786*	792*
Change		-21	8*	6*	-6*	-109*
Energy indirect (Scope 2) emissions: location-based[3b]		1,044	1,048*	999	994*	N/A
Change		-4	49*	5*	N/A	N/A
Other indirect emissions: Scope[3]	305-3a	1,697	1,920	1,730*	1,710	1,581
Change		-233	230*	20*	129*	-28*
Other indirect emissions: Scope 3 Biogenic emissions[4b]	305-3c	0	0	N/A	N/A	N/A
Change		0	N/A	N/A	N/A	N/A
CHANGE IN TOTAL GHG EMISSIONS	**305-5**	**-262**	**186***	**19***	**149***	**-134***
Production volume, 1,000 tonnes		5,310	5,164**	5,028	4,845*	4,587
GHG EMISSIONS INTENSITY, tCO_2 per tonnes of production[5]	**305-4**	**0,5**	**0.6****	**0.5**	**0.6**	**0.6***

* Minor updates to data were provided by sites during 2018 data collection.
** Value was adjusted due to one site that over-reported its production data.

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 2018 we have 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_2eq 1,000 tonnes	GRI disclosure	2018	2017	2016	2015	2014
TOTAL SCOPE 3 EMISSIONS	**305-3d**	**1,697**	**1,920**	**1,730**	**1,710**	**1,580**
1. Purchased goods and services		1,040	960	840	870	760
2. Capital goods*		*	*	*	*	*
3. Fuel and energy related activities		240	240	230	230	240
4. Upstream transportation and distribution		110***	240	220	200	200
5. Waste generated in operations		80	80	40	20	20
6. Business travel		5**	5	10	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		200***	370	370	350	330
11. Use of sold products		*	0	0	0	0
12. End-of-life treatment of sold products		2	2	2	0	0

* Emissions of Category 2: Capital goods are included in Category 1: Purchased goods and services.
** Categories 6-8 were not calculated in 2018 because making less than 2% in earlier years. 2018 was approximately 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. Major changes occurred for years 2012–2014 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_2eq. 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 by approximately by 13% compared to 2017 and decreased by approximately 11% since 2014. Sulfur oxides (SOx) emissions has decreased by approximately 9% from 2017 and approximately 19% since 2014.

RELEASES INTO AIR, tonnes	GRI disclosure	2018	2017	2016	2015	2014
Nitrogen oxides (NOx)[1]	305-7a.i	182	161	160	194	206
Sulfur oxides (SOx)[2]	305-7a.ii	70	77	84	83	86
Volatile organic compounds (VOC)[3]	305-7a.iv	649	574*	783	430	661
Other air emissions[4,5]	305-7a.vii	349	99	173	55*	82*
Particulates (PM)	305-7a.vi	16	18	11	14	16
Persistent organic pollutants (POP)[5]	305-7a.iii	0	0	N/A	N/A	N/A
Hazardous air pollutants (HAP)[5]	305-7a.v	10	13	N/A	N/A	N/A
Ozone-depleting substances[6]	305-6	0	0	0	0	0

* Minor updates to data were provided by sites during 2018 data collection. The figures presented are based on data collected directly from Kemira's sites.

1. NO_x consist of nitric oxide and nitrogen dioxide.
2. SO_x consists of sulfur dioxide and sulfur trioxide.
3. VOC is a sum of volatile organic compounds as defined in EU Directive 1999/13/EC. VOC increases are primarily associated with the site that is the largest emitter of VOC in Kemira. The site's production rate increased in 2016, and the site improved the accuracy of the emissions calculation methodology for VOC.
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, POP, 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. Emissions are primarily from one manufacturing site.

WATER

GRI 303-1: Water withdrawal by source
GRI 303-3: Water recycled and reused
GRI 306-1: Water discharge by quality and destination

Overview of water flows, million m^3

WATER WITHDRAWAL BY SOURCES, TOTAL

99.7

Surface water	86%
Ground water	3%
Municipal water suppliers	3%
Other	8%

WATER DISCHARGES BY DESTINATION, TOTAL

88.2

Treatment not required (cooling water)	97%
Purified in own or external wastewater treatment plant	3%

WATER RECYCLED AND REUSED, TOTAL

3.6

Water recycled in the same process, in the same facility, or reused in another facility

4% of total water withdrawal

BALANCE OF UNSPECIFIED WATER WITHDRAWAL SOURCES AND DISCHARGES

7.9

Evaporation, water added in products, waste, leakages

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. Cooling water is approximately 90% of the total water withdrawal.

Where possible, water is recycled and / or reused at our sites to reduce water consumption. We are continuously evaluating opportunities to decrease water consumption through process optimization projects, for example, in all of our upgrade and new production line projects.

Wastewater and cooling water discharges at the manufacturing sites are subject to regulatory and permitting requirements. Wastewater is treated in accordance with local legislation and regulations. Wastewater generated from Kemira's manufacturing processes are primarily treated in external wastewater treatment plants prior to discharge to a waterbody. Cooling water does not usually require treatment.

Water risk assessment
In 2018, there were no signifcant fines or non-conformities with regards to environmental laws or regulations or claims from external wastewater treatment plant authorities against Kemira.

Kemira conducted a water risk assessment for the first time in 2014, to define the potential impact both to our operations due to water scarcity, and to local water resources due to our operations. The assessment was carried out at 54 sites globally using the Global Water Tool, developed by the World Business Council for Sustainable Development (WBCSD) to identify a site's location in extremely water scarce areas. The GEMI Local Water Tool was used to identify site-specific water risks. The 2014 results indicated that Kemira's operations pose a low risk to local water resources, while water scarcity may pose a potential business discontinuity risk to Kemira operations at one manufacturing site.

In 2017, Kemira conducted a second assessment, using the World Resources Institute's Aqueduct Water Risk Atlas, a global mapping tool to identify water risks. The mapping covered 63 manufacturing sites. The results indicated that our withdrawals do not significantly affect water sources for the following reasons:

- About 92% 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 2% of the sites, "Low to medium" for 70%, "Medium to High" for 24% and "High" for <5% of the 63 manufacturing sites
- The manufacturing sites covering 99% of total water withdrawal are located in areas with "Low" or "Low to medium" overall water risk

Water withdrawal and discharges trends
The total water withdrawal increased by approximately 2% from 2017 and decreased by approximately 4% compared to 2014. The water withdrawal intensity (m3 per tonnes of production) decreased by approximately 1% from 2017 and by approximately 17% compared to 2014.

Chemical oxygen demand (COD) discharges decreased by approximately 10% from 2017. Biological oxygen demand (BOD) increased slightly from 2017 and Nitrogen (N) and Phosphorus (P) discharges remained at the same levels as in 2017. The discharge of suspended solids increased to five tonnes from four tonnes in 2017. The discharge of other (e.g., heavy metals, chlorides) pollutants increased by approximately 12% from 2017.

OVERVIEW OF WATER FLOWS, million m³	GRI disclosure	2018	2017	2016	2015	2014
WATER WITHDRAWAL BY SOURCES, TOTAL	**303-1**	**99.7**	**97.7**	**102**	**98**	**104**
Sources of process water		10.2	8.1	8.5	8.4	7.5
Surface water		2.3	3.9	4.2	4.2	3.7
Ground water		1.2	1.0	1.1	1.3	1.1
Rainwater		0.1	0.0	0.1	0.0	0.0
Waste water from another organization		0.0	0.0	0.0	0.0	0.0
Municipal water suppliers		2.6	2.4	2.4	2.4	2.2
Other		4.0	0.7	0.8	0.5	0.5
Sources of cooling water		**89.6**	**89.6**	**93.5**	**89.4**	**96.7**
Surface water		83.3	83.7	88.0	83.6	93.3
Ground water		2.0	2.0	1.6	2.3	0.3
Rainwater		0.0	0.0	0.0	0.0	0.0
Waste water from another organization		0.0	0.0	0.0	0.0	0.0
Municipal water suppliers		0.2	0.2	0.1	0.2	0.2
Other		4.0	3.7	3.7	3.3	2.9
WATER RECYCLED AND REUSED, TOTAL	**303-3a; 306-1a**	**3.6****	**3.2****	**3.3****	**3.5****	**3.0****
Water recycled back in the same process		0.1**	0.2**	0.1**	0.4**	0.1**
Water recycled in a different process, but within the same facility		3.3	3.0	3.1	3.1	0.0
Water reused in another facility	306-1a.iii	0.1	0.1	0.1	0.1	2.9
Share of total water recycled and reused, %[1]	303-3b	4%	3%	3%	4%	3%
WATER DICHARGES BY DESTINATION, TOTAL	**306-1a.i**	**88.2*****	**88.2*****	**92.2*****	**86.0*****	**95.7*****
External treatment of wastewater[3]		1.8	1.6	1.5	1.5	1.6
Own treatment of wastewater[3]		0.6	0.6	0.5	0.5	0.5
Discharged with no treatment required (e.g. cooling water)		85.9	86.0	90.2	83.9	93.5
Unspecified water losses[2]		**7.9**	**6.3**	**6.6**	**8.3**	**5.5**
Production volumes, 1,000 tonnes		5,310	5,164 ^	5,028	4,845*	4,587
WATER WITHDRAWAL INTENSITY, m³ per tonnes of production		**18.8**	**18.9***	**20.3**	**20.2**	**22.7**

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

Source of water used for purposes besides process and cooling are not included in the water balance since they comprise less than 1% of total water withdrawal.

*Minor updates to data were provided by sites during 2018 data collection.

** The definition for this category was redefined to exclude the water included in the product at certain sites

*** The values for this category were reclassified to this category for one site

^ Value was adjusted due to one site that over-reported its production data.

1. Water recycled and reused is calculated as a percentage of the total water withdrawal as specified in Disclosure 303-1.
2. Balance = Unspecified water losses such as water evaporated. Calculated as Water withdrawal minus Water reused and recycled minus Water discharged. Kemira aims to have a minimum 90% accuracy on the water balance. First reported in 2014 when data for discharge of cooling water became available.
3. Further description of volume by destination (e.g., river, sea) is not provided since the values are typically less than 3% of total.

TOTAL WATER DISCHARGES BY QUALITY, tonnes	GRI disclosure	2018	2017	2016	2015	2014
Chemical Oxygen Demand (COD)	306-1a.ii	34	38	34	16	15
Biological Oxygen Demand (BOD)	306-1a.ii	1	0	0	1	2
Nitrogen (N)	306-1a.ii	3	3	3	2	2
Phosphorus (P)	306-1a.ii	1	1	1	1	1
Suspended solids	306-1a.ii	5	4	1	2	5
Other (e.g., heavy metals, chlorides)[1]	306-1a.ii	326	291	308	9	1
Total Organic Carbon (TOC)[2]	306-1a.ii	1	1	N/A	N/A	N/A

The calculations have been made according to GRI Standards. Data limited to wastewater discharges from own treatment. Kemira reports discharge quality data only from sites required by environmental laws and regulations or other requirements to monitor these parameters.

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.

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, recycled and / or reused in compliance with statutory requirements.

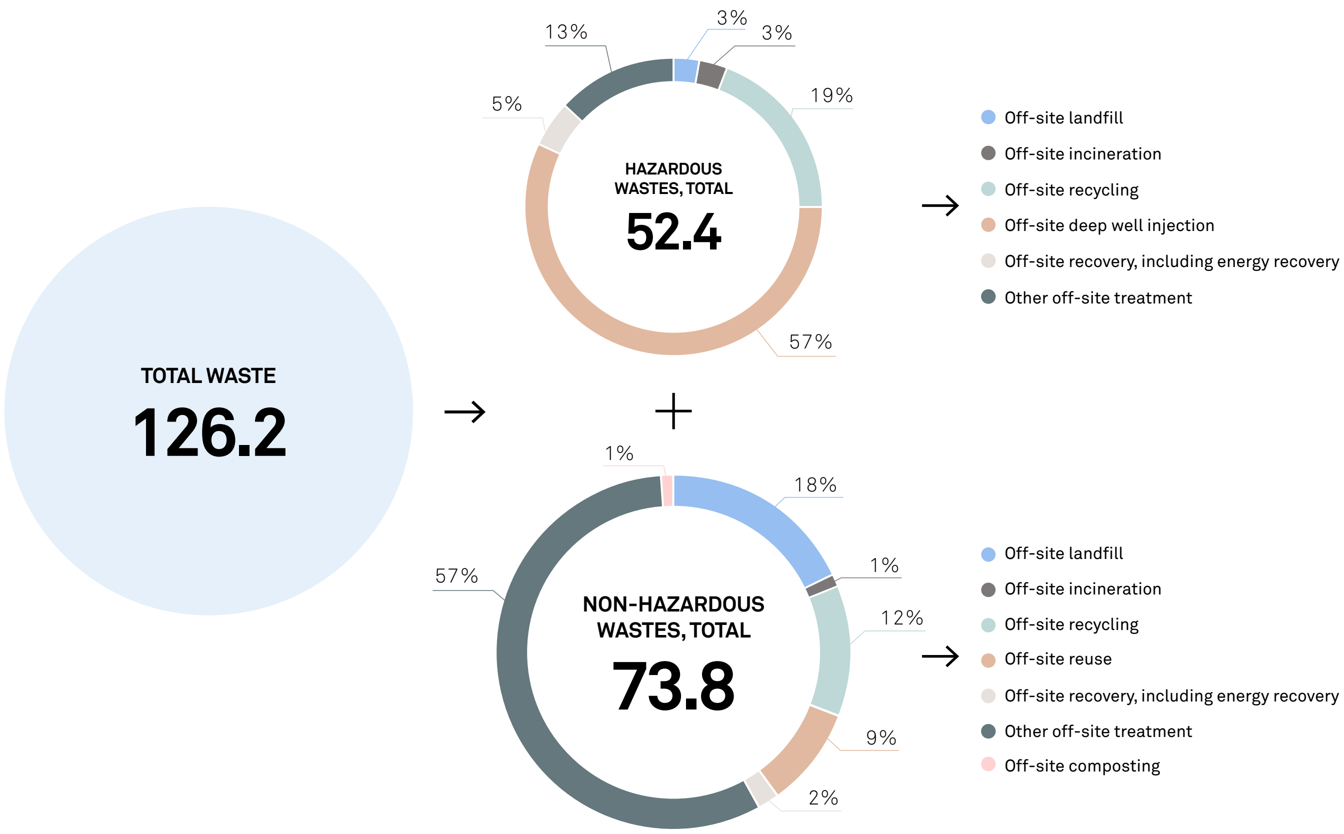
Hazardous waste

Ten manufacturing sites generate approximately 89% of the hazardous waste. In 2018, one site alone accounted for 57% 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 10% from 2017 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.

Non-hazardous waste

Total amount of non-hazardous waste increased by approximately 19% from 2017. This is primarily due to an increase in generation of non-hazardous waste at one site (waste solution and sludge with a large share of water) that accounted for approximately 46% of total non-hazardous waste generated in Kemira, as well as improved data collection and reporting.

Total waste by type and disposal method, 1,000 tonnes



GRI 306-2: Waste by type and disposal method

WASTE, 1,000 tonnes	GRI disclosure	2018	2017	2016	2015	2014
HAZARDOUS WASTES, total	**306-2a**	**52.4**	**47.8**	**49.3***	**75.2***	**41.7**
Off-site landfill		1.8	1.9	1.1	1.3	1.2
Off-site incineration		1.3	6.4*	5.1*	2.6	2.2
Off-site recycling		10.2	6.3	7.4*	9.6	6.6
Off-site reuse		0.0				
Off-site deep well injection[1,2]		29.9	26.3	28.2	54.8	28.1
Off-site recovery, including energy recovery		2.5	0.0	0.0	0.0	0.0
Other off-site treatment[2]		6.7	6.8	7.5	6.9	3.6
On-site incineration		0.0	0.0*	0.0*	0.0	0.0*
On-site landfill		0.0	0.0	0.0	0.0	0.0
NON-HAZARDOUS WASTES, total	**306-2b**	**73.8**	**62.2**	**31.3***	**35.4**	**27.6***
Off-site landfill		13.6	19.2	12.6*	10.9*	11.6
Off-site incineration		0.4	1.4*	1.6	1.3	1.2*
Off-site recycling		9.1	4.5	7.4*	14.9	11.8
Off-site reuse		6.7				
Off-site recovery, including energy recovery		1.1	0.0	N/A	N/A	N/A
Other off-site treatment		42.4	36.6	9.7	8.2	3.1
Off-site composting[1]		0.5	0.5	N/A	N/A	N/A
On-site incineration		0.0	0.0	0.0	0.0	0.0*
On-site landfill		0.0	0.0	0.0*	0.0*	0.0
TOTAL WASTE DISPOSAL		**126.2**	**110.0**	**80.6***	**110.6**	**69.4**

*Minor updates to data were provided by sites during 2018 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.

GRI 306-3: Signifcant spills

A global Spill Prevention Standard was approved in March 2017. Kemira has internal KPIs with annual targets for Loss of Primary Containment (LOPC) and Environmental Incidents in 2018. 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 Major Incident includes an environmental incident 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 that would be a Kemira Crisis Category of Local Level or Group Regional and Global Level

In 2018 there were nine Major Incidents according to Kemira's Incident Reporting Standard that involved environmental releases, compared to 12 in 2017.

- Transportation incidents (including related loading and unloading activities) accounted for two significant spills. One occured at our manufacturing site and one at a customers site. The total volume of the transportation incidents was approximately 3 tonnes.
- Manufacturing incidents accounted for seven significant spills. Six occured at our manufacturing sites and one at an offsite storage location. The total volume of the significant spills at manufacturing plants were approximately 18 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 2018, approximately 52,000 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 2018.

Our Fray Bentos, Uruguay site 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 2018, there were 34 tonnes of hazardous waste exported from the Fray Bentos facility. In addition, 2 tonnes of hazardous waste from the Oulu site, 0.5 tonnes each from the Europoort site and the Helsingborg site were exported to the UK to be disposed. In total, less than 1% of the hazardous waste generated in 2018 (less than 1% in 2017) 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 2018:

- One inorganic coagulant facility in the United States received an administrative penalty for non-compliance with local industrial stormwater regulations and requirements. The authority agreed the site implemented sufficient corrective actions to return to compliance and the case was closed after payment of approximately EUR 3,300.
- One inorganic coagulant facility in the United States was cited for failure to submit the required notifications to the local authority following two incidents at the facility. The local authority issued a monetary sanction of approximately EUR 16,000. However, Kemira was able to provide evidence that the required notifications were provided within the required time and the notice of violation and monetary sanction were rescinded.
- One inorganic coagulant facility in Canada received a warning letter from the local authority for failure to submit a timely report regarding an air emissions release caused by a contractor working at the site. The site responded to the requests contained in the warning letter within the specified time period. No further action was taken by the local authority.
- One polymer facility in the United States self-disclosed a potential regulatory compliance matter to the environmental authority in December 2018. Details regarding the disclosure were not finalized as of the date of this report.

The procedures to monitor legal requirements vary in Kemira, depending on the countries of operation and site operations. In 2018, Kemira started to implement new, more effective online tools at some of the sites, to improve the Global EHSQ Team's ability to monitor the compliance status at the sites. Use of the effective online tools will be extended in 2019.

- Kemira maintained environmental protection costs at approximately 0.8% of revenue (0.9% 2017) despite an approximately 3% increase in production volume compared to 2017.

SOCIAL

INFORMATION ON EMPLOYEES

GRI 102-8: Information on employees and other workers

At the end of 2018, Kemira employed 4,915 people (4,732). The employee distribution by region shows that 52% (54%) of Kemira's total workforce were employed in EMEA, and 32% (32%) in the Americas. The number of employees have increased by 183 (compared to a decrease of 86 during 2017). The increase is mainly due to new sites and capacity expansions in manufacturing operations. Workers who are legally recognized as selfemployed, or individuals other than the ones in Kemira's payroll are not counted on these numbers.

Kemira is using external service providers (contractors) which work at Kemira locations. These services cover, for example cleaning, snow blowing, engineering & technology projects, and maintenance work. 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 2018, there was approximately 2.1 million hours which equals to about 1,100 FTE (Full Time Equivalents) when assuming 7.5 hours per day and 250 working days per year.

GRI 102-8: Total number of employees

	2018	2017	2016	2015	2014
TOTAL NUMBER OF EMPLOYEES*	**4,915**	**4,732**	**4,818**	**4,685**	**4,248**
Females, %	26%	26%	26%	26%	26%
Males, %	74%	74%	74%	74%	74%
White collar, %	60%	62%	61%	62%	58%
Blue collar; %	40%	38%	39%	38%	42%

* At year end

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

	2018	2017	2016	2015	2014	%,2018	%,2017	%,2016	%,2015	%,2014
TOTAL NUMBER OF EMPLOYEES	**4,915**	**4,732**	**4,818**	**4,685**	**4,248**					
Total permanent	4,789	4,615	4,715	4,559	4,133	97.4 %	97.5%	97.9%	97.3%	97.3%
Total fixed-term	126	117	103	126	115	2.6 %	2.5%	2.1%	2.7%	2.7%
FEMALES TOTAL	**1,255**	**1,223**	**1,259**	**1,220**	**1,110**					
Permanent	1,205	1,175	1,227	1,171	1,064	96.0 %	96.1%	97.5%	96.0%	95.9%
Fixed term	50	48	32	49	46	4.0 %	3.9%	2.5%	4.0%	4.1%
MALES TOTAL	**3,660**	**3,509**	**3,559**	**3,465**	**3,138**					
Permanent	3,584	3,440	3,488	3,388	3,069	97.9 %	98.0%	98.0%	97.8%	97.8%
Fixed term	76	69	71	77	69	2.1 %	2.0%	2.0%	2.2%	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 5%, Canada 15%), 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, 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 32%, Germany 39%, 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 26 countries with 10 or more employees and which altogether represents 98% of all employees.

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

	2018	2017	%, 2018	%,2017
TOTAL NUMBER OF EMPLOYEES	**4,915**	**4,732**		
Americas	1,559	1,514	31.7%	32.0%
Asia Pacific	777	647	15.8%	13.7%
EMEA	2,579	2,571	52.5%	54.3%
Permanent total	**4,789**	**4,615**		
Americas	1,559	1,514	32.6%	32.8%
Asia Pacific	777	647	16.2%	14.0%
EMEA	2,453	2,454	51.2%	53.2%
Temporary total	**126**	**117**		
Americas	-		0.0%	0.0%
Asia Pacific	-		0.0%	0.0%
EMEA	126	117	100.0%	100.0%

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

	2018	2017	2016	2015*	2014*	%,2018	%,2017	%,2016	%,2015*	%,2014*
TOTAL EMPLOYEES	**4,915**	**4,732**	**4,818**	**4,559**	**4,133**					
Total full-time	4,842	4,660	4,747	4,481	4,099	98.5 %	98.5%	98.5%	98.3%	99.2%
Total part-time	73	72	71	78	34	1.5 %	1.5%	1.5%	1.7%	0.8%
FEMALES TOTAL	**1,255**	**1,223**	**1,259**	**1,171**	**1,064**					
Full-time	1,202	1,168	1208	1,106	1,037	95.8 %	95.5%	95.9%	94.4%	97.5%
Part-time	53	55	51	65	27	4.2 %	4.5%	4.1%	5.6%	2.5%
MALES TOTAL	**3,660**	**3,509**	**3,559**	**3,388**	**3,069**					
Full-time	3,640	3,492	3,539	3,375	3,062	99.5 %	99.5%	99.4%	99.6%	99.8%
Part-time	20	17	20	13	7	0.5 %	0.5%	0.6%	0.4%	0.2%

*2014-2015 numbers for permanent employees

EMPLOYMENT

GRI 401-1: New employee hires and employee turnover

The total number of new hires in 2018 was 804 (597), out of which 28% (31%) were female and 72% (69%) 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 10.1% in 2018 compared to 12% in 2017. The total turnover is based on permanent workforce.

The turnover rate in EMEA was 9.0% (11%), which was the lowest of the regions. The highest turnover rate was in Americas 12.3% (13.5%) and the APAC region had turnover of 9.3% (12.8%). The turnover rate was highest at the age group <30 years 16.2% (19.3%) and females 11.8% (15%), both rates lower than 2017.

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				
	2018	2017	2016	2015	2014	%, 2018	%, 2017	%, 2016	%, 2015	%, 2014
TOTAL NEW HIRES	**804**	**597**	**695**	**673**	**710**				**100.0%**	**100.0%**
NEW HIRES BY AGE GROUP										
<30	319	286	284	293	291	40 %	48%	41%	43.5%	41.0%
30-50	420	260	358	312	348	52 %	44%	52%	46.4%	49.0%
>50	65	51	53	68	71	8 %	9%	8%	10.1%	10.0%
NEW HIRES BY GENDER	**804**									
Females	222	188	218	208	236	28 %	31%	31%	30.9%	33.2%
Males	582	409	477	465	474	72 %	69%	69%	69.1%	66.8%
NEW HIRES BY REGION	**804**									
APAC	203	79	173	60	60	25 %	13%	25%	8.9%	8.5%
EMEA	365	352	364	373	418	45 %	59%	52%	55.4%	58.9%
Americas	236	166	158	240	232	29 %	28%	23%	35.7%	32.7%

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

	Turnover					Turnover, %				
	2018	2017	2016	2015	2014	%, 2018	%, 2017	%, 2016	%, 2015	%, 2014
TOTAL TURNOVER	**497**	**570**	**441**	**490**	**736**	**10.1 %**	**12.0%**	**9.2%**	**10.5%**	**17.3%**
TURNOVER BY AGE GROUP										
<30	96	109	72	78	96	16.2 %	19.3%	12.4%	13.6%	18.6%
30-50	253	258	228	263	428	8.9 %	9.9%	8.2%	9.8%	17.6%
>50	148	203	141	149	212	10.0 %	13.0%	9.6%	10.4%	16.3%
TURNOVER BY GENDER	**497**									
Female	148	193	136	144	242	11.8 %	15.8%	10.8%	11.8%	21.8%
Male	349	377	305	346	494	9.5 %	10.7%	8.6%	10.0%	15.7%
TURNOVER BY REGION	**497**									
APAC	72	83	53	56	44	9.3 %	12.8%	8.1%	10.4%	12.5%
EMEA	233	282	214	225	464	9.0 %	11.0%	8.2%	8.8%	19.2%
Americas	192	205	174	209	228	12.3 %	13.5%	11.2%	13.2%	15.4%

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, e.g. 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

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.

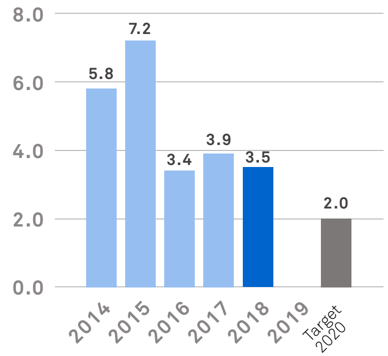
Our health and safety performance in 2018 improved compared to 2017. TRIF fell in 2018 to a level consistent with 2016 performance.

Total number of TRIs was 44 (49) and TRIF ended up to 3.5 (3.9). The ratio of incidents for Kemira employees and for contractors working at Kemira sites remained at the 2017 level. Long-term trend remains positive and we continue to strive toward our 2020 goal of TRIF 2.0.

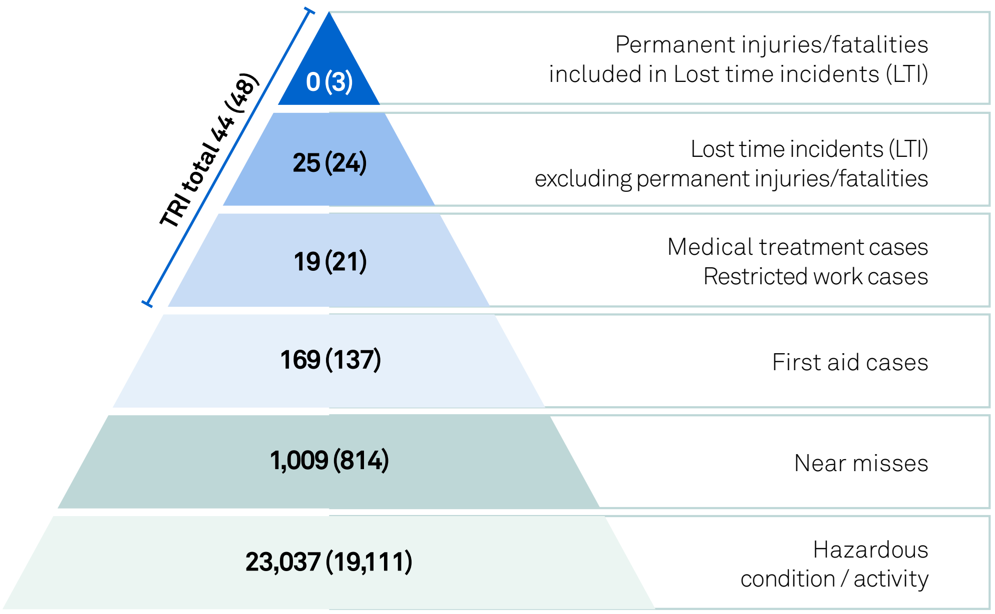
No fatalities have been associated with Kemira employees since 2005. In 2018 we had no permanent injuries and the overall injury severity decreased from 2017. The noticeable decline in severity and permanent injuries are responses to ongoing management commitment, progressive safety messaging and an overall improvement in safety culture.

To improve our health and safety culture, the Behavior Based Safety (BBS) Program has been one of our top priorities since 2016. The program focuses on employee safety engagement at all levels. In 2018, we continued to implement the program to cover all APAC, EMEA and SA manufacturing sites. Peer to peer communication, quality of observations and positive feedback had a renewed emphasis at established sites. The BBS program has generated numerous field observations of behaviors (both positive and negative) that are being used to prevent hazardous conditions and potential injuries.

OUR SAFETY PERFORMANCE (TRIF)



Personal injuries pyramid 2018 (2017)



We have continued to improve our internal communication of health and safety incidents, reviews and proactive campaigns during 2018.

- We conducted the Safety Campaign – "Stop. Think. Act." with 11 separate topics, including safety critical issues such as cut prevention, working at heights and traffic safety. These "Stop. Think. Act." topics were translated into 18 languages and were promoted with posters, online advertisements, internal articles, weekly EHSQ Bulletins and Monthly Regional EHSQ communication calls
- We made a concerted effort to promote the Life Critical Standards which cover high hazard (non-standard) work topics that put employees at the greatest risk of serious injury or death. This effort included developing new global standards that both clarified and expanded the minimum requirements to perform these activities. In 2019, we will continue this effort with the implementation of the Life Saving Rules Campaign which will be based on the international best practices in the oil industry and will focus on work activities such as confined space, working at height, work authorization, energy isolation, line of fire and hot work
- A project to improve and standardize training at each manufacturing site for both Kemira employees and contractors was initiated. We focused on eLearning based training, and these efforts will continue through 2019, with full implementation in 2020

In order to further increase safety awareness and to improve recognition and elimination of hazards in the work environment, a key performance indicator of Hazardous Conditions / Activities was continued in 2018. This is a leading safety indicator reflecting environmental or behavior related hazards at the workplace. The number of reported Hazardous Conditions / Activities was 23,037 in 2018 which equals to 5 per Kemira employee, which surpassed Kemira's internal goal. This type of proactive identification of Hazardous Conditions / Activities not only allows us to avoid incidents but also improves our operations and work methods.

The safety performance indicators of Hazardous Conditions / Activities and TRIF have been included as corporate bonus targets for every employee since 2017.

Total Recordable Injuries

TRI	2018	2017	2016	2015	2014
TOTAL TRI	**44**	**48**	**46**	**77**	**61**
Kemira employees	30	31	32	56	44
Contractors working at Kemira site	14	17	14	21	17
REGIONAL TRI					
APAC	4	1	2	1	0
EMEA	22	31	22	53	35
Americas	18	16	22	23	26

TRI Frequency	2018	2017	2016	2015	2014
GLOBAL TRIF	**3.5**	**3.9**	**3.4**	**7.2**	**5.8**
Regional TRIF					
APAC	2.0	0.6	0.9	0.6	0
EMEA	4.1	6.0	3.4	10.6	6.1
Americas	4.6	5.1	4.8	5.7	6.4

Lost Time Incidents

LTI	2018	2017	2016	2015	2014
TOTAL LTI	**25**	**27**	**20**	**30**	**24**
Kemira employees	15				
Contractors working at Kemira site	10				
REGIONAL LTI					
APAC	0	1	2	1	0
EMEA	16	23	12	22	19
Americas	9	3	6	7	5

LTI Frequency	2018	2017	2016	2015	2014
GLOBAL LTIF	**2.0**	**2.2**	**1.5**	**2.7**	**2.7**
REGIONAL LTIF					
APAC	0	0.6	1	0.6	0
EMEA	3	4.6	2.1	5.4	4.4
Americas	2.3	1.0	0.8	2	1.8

TRAINING AND EDUCATION

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

Kemira aims to capture all training, education and employee development related hours in the learning management system (LMS) that is feasible, and have 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 2018 are Finland 8,856 (7,847) hrs, UK 6,037 (4,482) hrs, Sweden 5,476 (5,719) hrs, USA 4,919 (4,973) hrs, Netherlands 3,833 (4,075) hrs, China 10,569 (6,770) hrs and Poland 6,186 (4,185) hrs. Globally registered average hours per employee for blue collar employees are lower than for white collar employees, indicating some difference in recording hours in the global 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 2018.

Examples of other global and regional programs offered during 2018 are listed below:

- Code of Conduct, anti-corruption, human rights and business Code of Conduct, anti-corruption, human rights and business and other compliance programs delivered mainly through eLearning
- GDPR fundementals, principles and rights and obligations
- Information security awareness programs and ICS security training
- Extensive EHSQ related programs including EHSQ hazardous Condition/Activity Training, Chemical handling, Communicating on chemical hazards, Crisis management, PPE, Manual handling, and Energy Management system
- Innovation training
- Professional and technical competence development programs including commercial sales programs
- Manufacturing and product lifecycle management programs
- 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 outplacement / job placement services

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

Our global perfomance 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,%				
	2018	2017	2016	2015	2014	%, 2018	%, 2017	%, 2016	%, 2015	%, 2014
TOTAL PERMANENT EMPLOYEES NOT ABSENT*	**4,597**	**4,626**	**4,590**	**4,440**	**4,019**					
PDD'S BY GENDER										
Employees covered in Global PDD process	4,093	4,139	4,009	4,147	3,803	89%	89%	87%	93%	95%
Females covered in Global PDD process	1,099	1,119	1,116	1,030	977	95%	97%	93%	96%	95%
Males covered in Global PDD process	2,994	3,020	2,893	3,117	2,826	87%	87%	85%	93%	94%
PDD'S BY EMPLOYEE CATEGORY										
White collars covered in Global PDD process	2,731	2,778	2,702	2,730	2,317	97%	98%	98%	97%	98%
Blue collars covered in Global PDD process	1,362	1,275	1,307	1,417	1,486	76%	71%	72%		89%

* 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 2018, 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 – 2018. The number of females in executive positions (Directors and above) has increased to 29% vs. 27% in 2017.

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 elevant

Performance and Development Discussion (PDD)	Total					%				
	2018	**2017**	**2016**	**2015**	**2014**	**%, 2018**	**%, 2017**	**%, 2016**	**%, 2015**	**%, 2014**
MANAGEMENT BOARD										
Total	**8**	**8**	**10**	**10**	**9**					
Female	1	1	2	2	2		13%	20%	20%	22%
Male	7	7	8	8	7		88%	80%	80%	78%
By age group										
<30	0	0		0	0		0%	0%	0%	0%
30-50	1	1	2	5	6		13%	20%	50%	67%
>50	7	7	8	5	3		88%	80%	50%	33%
BOARD OF DIRECTORS										
Total	**6**	**6**	**7**	**6**	**6**					
Female	3	3	3	2	2		50%	43%	33%	33%
Male	3	3	4	4	4		50%	57%	67%	67%
By age group										
<30	0	0		0	0		0%	0%	0%	0%
30-50	1	1	1	0	0		17%	14%	0%	0%
>50	5	5	6	6	6		83%	86%	100%	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					%				
	2018	2017	2016	2015	2014	%, 2018	%, 2017	%, 2016	%, 2015	%, 2014
TOTAL EMPLOYEES	**4,915**	**4,732**	**4,818**	**4,685**	**4,248**	**100 %**	**100%**	**100%**	**100%**	**100%**
<30	594	566	579	575	515	12 %	12%	12%	12%	12%
30-50	2,848	2,607	2,772	2,672	2,435	58 %	55%	58%	57%	57%
>50	1,473	1,559	1,467	1,438	1,298	30 %	33%	30%	31%	31%
Female in total	**1,255**	**1,223**	**1,259**	**1,220**	**1,110**	**26 %**	**26%**	**26%**	**26%**	**26%**
<30	179	190	179	188	172	14 %	16%	14%	15%	15%
30-50	827	764	823	773	705	66 %	62%	65%	63%	64%
>50	249	269	257	259	233	20 %	22%	20%	21%	21%
Male in total	**3,660**	**3,509**	**3,559**	**3,465**	**3,138**	**74 %**	**74%**	**74%**	**74%**	**74%**
<30	415	376	400	387	343	11 %	11%	11%	11%	11%
30-50	2,021	1,843	1,949	1,899	1,730	55 %	53%	55%	55%	55%
>50	1,224	1,290	1,210	1,179	1,065	33 %	37%	34%	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 allows 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 2018, eleven incidents were reported to the Ethics & Compliance function alleging potential discrimination or harassment. Five of the cases were investigated and closed without merit. Four of the cases were closed with merit and the cases were remediated during 2018. Two cases were under investigation at the end of 2018.

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 2018	Women to men ratio 2017	Women to men ratio 2016	White Collar Headcount 2018
Austria	87%	95 %	n/a	49
Brazil	85%	79 %	n/a	133
Canada	88%	88 %	88 %	118
China	93%	93 %	94 %	270
Finland	92%	91 %	91 %	607
Germany	96%	97 %	98 %	90
Italy	90%	90 %	n/a	76
Netherlands	89%	93 %	96 %	79
Poland	97%	92 %	92 %	316
Spain	84%	83 %	n/a	52
Sweden	97%	96 %	99 %	134
United Kingdom	92%	93 %	96 %	92
United States	92%	89 %	88 %	593
Total for largest countries	**92%**	**90 %**	**n/a**	**2,609**

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 Suppliers, Distributors and Agents (CoC-SDA). All of our Suppliers (engaged with a SAP Purchased Order) receive a written reference to CoC-SDA 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 2018, 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 25% 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 2018, 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 Kemira 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 2018

- A new global onboarding program was launched for new hires (white collars) which is automatically assigned to them on the date of hire. The program includes online courses on Code of Conduct and Human Rights and Business.
- 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.

By the end of 2018, 96% of the targeted employees had completed the basic training. Target group was 2,734 in the end of 2018.

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 2018.

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 2018, 83% (19 out of 23) of the identifed 23 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 non-compliance with regulations and voluntary codes regarding our products or services in 2018.

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 2,000 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 SDS's 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 SDS's 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 2018, the Kemira Product Stewardship & Regulatory Affairs team responded to 6863 (7,720 in 2017) 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 2018, a total of 112 customer claims were recorded relating to labeling, of which 59 cases were in the EMEA region, 32 in the Americas, and 21 in the APAC region. Corrective actions planned for 15 cases were underway at year end.

Concerning regulations on product and service information and labelling, there were no reported incidents of non-compliance within Kemira's operations which would have resulted in any fine, penalty or warning.

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 non-compliance with product related laws and / or regulations in 2018.

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 SDS's 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 impact	When legally required, disposal of a product and environmental / social impact are communicated in the SDS's and on the labels

Reporting practice

REPORTING SCOPE AND CONTENT

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

At the end of the year 2018, Kemira had 64 (63 in 2017) manufacturing sites of which 63 were included in the environmental reporting scope, and 62 in the auditing scope of our integrated management system. During the year, one site was closed in Spain (Torrelavega) and during the Q4 2018 two new sites were added (Long Thanh in Vietnam and Yanzhou Tao in China). Beyond that, 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, 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 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, sponsorships 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, concerns 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 made in 2016-2017. Representatives of our key stakeholder groups were interviewed to identify their expectations towards Kemira, a benchmark study on material disclosure topics was carried out and major sustainability related development trends were analyzed.

Prioritization: The identifed 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 for but not covered by the GRI standards.

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

Review: Group level KPI's and targets for corporate responsibility 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. 60). 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 & 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 signifcant changes in the reporting.

REPORT PROFILE

GRI 102-50: Reporting period

The reporting period is from 1 January to 31 December 2018.

GRI 102-51: Date of most recent report

Kemira's previous Annual Report including non-financial information (GRI disclosures) was published on 26 February 2018.

GRI 102-52: Reporting cycle

Kemira's Annual Report is published yearly, by calendar year. The Annual Report consists of Business overview, GRI disclosures, 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.
- 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 responsibility 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 at this page, and the boundaries in the table Material topics and their boundaries (pages 63-64).

GRI 103-2: The management approach and its components

See Chapter 2 for detailed description.

GRI 103-3: Evaluation of the management approach

See Chapter 2, Results and key activities for 2018 for detailed description.

CORPORATE RESPONSIBILITY 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 on the Group level.
Water	Kemira manufacturing sites[3)]	Data is collected from each production site and consolidated on the Group level.
Emissions	Kemira manufacturing sites[3)]	Data is collected from each production site and consolidated on 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 on the Group level.
Environmental compliance	Kemira manufacturing sites[3)]	Data is collected from each production site and consolidated on the Group level.
Supplier environmental assessment	Kemira suppliers	Harmony Contract Management Tool used to track suppliers' signing of Code of Conduct for SDA.

Material topics and their boundaries

Social Standard Series		
Employment*	Kemira operations[1)]	HR data management system.
Labor/Management relations*	Kemira operations[1)]	HR data management system.
Occupational health and safety	Kemira operations[1)]	Synergy data management system. Data covers also contractors working at Kemira sites.
Training and education	Kemira operations[1)]	HR data management system.
Diversity and equal opportunities	Kemira operations[1)]	HR data management system.
Non-discrimination	Kemira operations[1)]	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 operations[1)]	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 operations[1)]	
Supplier social assessment	Kemira suppliers	Harmony Contract Management Tool used to track suppliers' signing of Code of Conduct for SDA.
Public policy	Kemira operations[1)]	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 ERP[2)]	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 ERP[2)]	Data is extracted from Kemira's ERP system and from PSRA[4)] documentation, and from Kemira's legal archives.
Socioeconomic compliance	Kemira operations[1)]	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 responsibility 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 Board of Directors of Kemira Oyj

We have been engaged by the management of Kemira Oyj (hereafter Kemira) to provide a limited assurance on Kemira's corporate responsibility information for the reporting period of January 1, 2018 to December 31, 2018. The information subject to the assurance engagement is the Kemira GRI Disclosures section in the Annual Report 2018 and corporate responsibility information disclosed in the Kemira Business Overview section on pages 6 and 15-18 in the Annual Report 2018 (hereaf-ter: Responsibility Information).

Management's responsibility

The management of Kemira is responsible for the preparation of the Responsibility Information in accordance with the Reporting criteria as set out in the GRI Disclosures section and the Sustainability Reporting Standards (Core) of the Global Reporting Initiative. This responsibility includes: designing, implementing and maintaining internal control relevant to the preparation and fair presentation of the Sustainability Information that are free from material misstatement, whether due to fraud or error, selecting and applying appropriate criteria and making estimates that are reasonable in the circumstances.

Assurance provider's responsibility

Our responsibility is to express a limited assurance conclusion on the Responsibility Information based on our engagement. We conducted our assurance engagement in accordance with Interna-tional Standard on Assurance Engagements (ISAE) 3000 (Revised) to provide limited assurance on performance data and statements within the Responsibility Information.

This Standard requires that we comply with ethical requirements and plan and perform the assurance engagement to obtain limited assurance whether any matters come to our attention that cause us to believe that the Responsibility Information has not been prepared, in all material respects, in accord-ance with the Reporting criteria.

We did not perform any assurance procedures on the prospective information, such as targets, ex-pectations and ambitions, disclosed in the Responsibility Information. Consequently, we draw no conclusion on the prospective information. Our assurance report is made in accordance with the terms of our engagement with Kemira. We do not accept or assume responsibility to anyone other than Kemira for our work, for this assurance report, or for the conclusions we have reached.

There are inherent limitations on accuracy and completeness of the data related to the Responsibility Information that are to be taken into account when reading our assurance report. A limited assur-ance engagement involves performing procedures to obtain evidence about the Responsibility Infor-mation. The procedures performed depend on the practitioner's judgment, but their nature is differ-ent from, and their extent is less than, a reasonable assurance engagement. The procedures do not include detailed testing of source data or the operating effectiveness of processes and internal con-trols. Consequently, the procedures do not enable us to obtain the assurance necessary to become aware of all significant matters that might be identified in a reasonable assurance engagement.

Our procedures on this engagement included:

- Conducting interviews with senior management responsible for corporate responsibility at Kemira to gain an understanding of Kemira's targets for corporate responsibility as part of the business strategy and operations;
- Reviewing internal and external documentation to verify to what extent these documents and data support the information included in the Responsibility Information and evaluating whether the information presented in the Responsibility Information is in line with our overall knowledge of corporate responsibility at Kemira;
- Conducting interviews with employees responsible for the collection and reporting of the Responsibility Information and reviewing of the processes and systems for data gathering, including the aggregation of the data for the Responsibility Information;

- Performing analytical review procedures and testing data on a sample basis to assess the reasonability of the presented responsibility information;
- Performing site visits to Krems in Austria and Tarragona in Spain to review compliance to reporting policies, to assess the reliability of the responsibility data reporting process as well as to test the data collected for responsibility reporting purposes on a sample basis;
- Assessing that the Responsibility Information has been prepared in accordance with the Sustainability Reporting Standards (Core) of the Global Reporting Initiative.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

Our independence, quality control and competences
We complied with Deloitte's independence policies which address and, in certain cases, exceed the requirements of the International Federation of Accountants Code of Ethics for Professional Account-ants in their role as independent assurance providers and in particular preclude us from taking finan-cial, commercial, governance and ownership positions which might affect, or be perceived to affect, our independence and impartiality and from any involvement in the preparation of the report. We have maintained our independence and objectivity throughout the year and there were no events or prohibited services provided which could impair our independence and objectivity.

Deloitte Oy applies International Standard on Quality Control 1 and accordingly maintains a compre-hensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements. This engagement was conducted by a multidisciplinary team including assurance and sustainability expertise with professional qualifications. Our team is experienced in providing sustainability report-ing assurance.

Conclusion
On the basis of the procedures we have performed, nothing has come to our attention that causes us to believe that the information subject to the assurance engagement is not prepared, in all mate-rial respects, in accordance with the Sustainability Reporting Standards (Core) of the Global Report-ing Initiative or that the Responsibility Information is not reliable, in all material respects, with regard to the Reporting criteria.

Helsinki 7.2.2019
Deloitte Oy

Jukka Vattulainen
Authorized Public Accountant

Lasse Ingström
Authorized Public Accountant

GRI CONTENT INDEX

GRI 102-55

Abbreviations

BR = Business Report
GRI = GRI report
GS = Corporate Governance Statement
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			
	Organizational profile		
GRI 102: General Disclosures 2016	102-1 Name of the organization	Kemira Oyj	
	102-2 Activities, brands, products, and services	BO 16-23	
	102-3 Location of headquarters	BO 2	
	102-4 Location of operations	BO 2	
	102-5 Ownership and legal form	BO 2	
	102-6 Markets served	BO 16-23	
	102-7 Scale of the organization	BO 2	
	102-8 Information on employees and other workers	BO 2, GRI 45-46	
	102-9 Supply chain	GRI 18-20	Principle 8
	102-10 Significant changes to the organization and its supply chain	GRI 59	
	102-11 Precautionary Principle or approach	BO 13-15, GRI 12	
	102-12 External initiatives	GRI 5-6	
	102-13 Membership of associations	GRI 6 (CEFIC)	
	Strategy		
	102-14 Statement from senior decision-maker	BO 4-5	Commitment to Global Compact
	102-15 Key impacts, risks, and opportunities	BO 7, 13-15, GRI 60	
	Ethics and integrity		
	102-16 Values, principles, standards, and norms of behavior	BO 6-7, GRI 22-23	Principle 6, 8
	102-17 Mechanisms for advice and concerns about ethics	GRI 22-23	Principle 1, 6, 8

GRI STANDARD	DISCLOSURE	PAGE NUMBER(S)	UNITED NATIONS GLOBAL COMPACT
	Governance		
	102-18 Governance structure	GRI 7	
	102-19 Delegating authority	GRI 7	
	Stakeholder engagement		
	102-40 List of stakeholder groups	GRI 6	
	102-41 Collective bargaining agreements	GRI 46	Principle 3
	102-42 Identifying and selecting stakeholders	GRI 6	
	102-43 Approach to stakeholder engagement	GRI 6	
	102-44 Key topics and concerns raised	GRI 6	
	Reporting practice		
	102-45 Entities included in the consolidated financial statements	FS NOTE 6.2	
GRI 102: General Disclosures 2016	102-46 Defining report content and topic Boundaries	GRI 59	
	102-47 List of material topics	GRI 59-60	
	102-48 Restatements of information	GRI 61	
	102-49 Changes in reporting	GRI 61	
	102-50 Reporting period	GRI 61	
	102-51 Date of most recent report	GRI 61	
	102-52 Reporting cycle	GRI 61	
	102-53 Contact point for questions regarding the report	GRI 61	
	102-54 Claims of reporting in accordance with the GRI Standards	GRI 61	
	102-55 GRI content index	GRI 67	
	102-56 External assurance	GRI 65-66	
Material Topics			
SUSTAINABLE PRODUCTS AND SOLUTIONS	**Own material topic**		
	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
GRI 103: Management Approach 2016	103-2 The management approach and its components	GRI 5-14, 62	
	103-3 Evaluation of the management approach	GRI 11-14, 62	
Own KPI	Product sustainability	GRI 11-12	

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	GRI 62-64	
	103-2 The management approach and its components	GRI 24-25	
	103-3 Evaluation of the management approach	GRI 24-25	
GRI 201: Economic Performance 2016	201-1 Direct economic value generated and distributed	GRI 24-25	
	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	
GRI STANDARD	**DISCLOSURE**	**PAGE NUMBER(S)**	**UNITED NATIONS GLOBAL COMPACT**
ANTI-CORRUPTION			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10, 22-23	
	103-3 Evaluation of the management approach	GRI 22-23	
GRI 205: Anti-corruption 2016	205-1 Operations assessed for risks related to corruption	GRI 26	Principle 10
	205-2 Communication and training about anti-corruption policies and procedures	GRI 26	Principle 10
	205-3 Confirmed incidents of corruption and actions taken	GRI 27	Principle 10
ANTI-COMPETITIVE BEHAVIOR			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10, 22-23	
	103-3 Evaluation of the management approach	GRI 22-23	
GRI 206: Anti-competitive Behavior 2016	206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	GRI 27	
GRI 300 Environmental Standards Series			
MATERIALS			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10	
	103-3 Evaluation of the management approach	GRI 5-10, 18-20	
GRI 301: Materials 2016	301-1 Materials used by weight or volume	GRI 28	
	301-2 Recycled input materials used	GRI 28	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	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10,30-31	
	103-3 Evaluation of the management approach	GRI 5-10. 30-31	
GRI 302: Energy 2016	302-1 Energy consumption within the organization	GRI 30	Principle 7,8
	302-3 Energy intensity	GRI 30	Principle 8
	302-4 Reduction of energy consumption	GRI 30	Principle 8, 9

GRI STANDARD	DISCLOSURE	PAGE NUMBER(S)	UNITED NATIONS GLOBAL COMPACT
WATER			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10,38	
	103-3 Evaluation of the management approach	GRI 5-10, 38	
GRI 303: Water 2016	303-1 Water withdrawal by source	GRI 39	Principle 7,8
	303-3 Water recycled and reused	GRI 39	Principle 8
EMISSIONS			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10, 17	
	103-3 Evaluation of the management approach	GRI 5-10, 17	
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	GRI 34	Principle 7,8
	305-2 Energy indirect (Scope 2) GHG emissions	GRI 34	Principle 7,8
	305-3 Other indirect (Scope 3) GHG emissions	GRI 34-35	Principle 7,8
	305-4 GHG emissions intensity	GRI 34	Principle 8
	305-5 Reduction of GHG emissions	GRI 34	Principle 8, 9
	305-6 Emissions of ozone-depleting substances (ODS)	GRI 36	Principle 7,8
	305-7 Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	GRI 36	Principle 7,8
EFFLUENTS AND WASTE			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10	
	103-3 Evaluation of the management approach	GRI 5-10, 38, 41	

GRI STANDARD	DISCLOSURE	PAGE NUMBER(S)	UNITED NATIONS GLOBAL COMPACT
GRI 306: Effluents and Waste 2016	306-1 Water discharge by quality and destination	GRI 39-40	Principle 8
	306-2 Waste by type and disposal method	GRI 41-42	Principle 8
	306-3 Significant spills	GRI 43	Principle 8
	306-4 Transport of hazardous waste	GRI 43	Principle 8
GRI STANDARD	**DISCLOSURE**	**PAGE NUMBER(S)**	**UNITED NATIONS GLOBAL COMPACT**
ENVIRONMENTAL COMPLIANCE			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10	
	103-3 Evaluation of the management approach	GRI 5-10	
GRI 307: Environmental Compliance 2016	307-1 Non-compliance with environmental laws and regulations	GRI 44	Principle 8
SUPPLIER ENVIRONMENTAL ASSESSMENT			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10, 18-21	
	103-3 Evaluation of the management approach	GRI 5-10, 18-21	
GRI 308: Supplier Environmental Assessment 2016	308-1 New suppliers that were screened using environmental criteria	GRI 18-21	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	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10, 21	
	103-3 Evaluation of the management approach	GRI 21-23	
GRI 401: Employment 2016	401-1 New employee hires and employee turnover	GRI 47-48	Principle 6
LABOR/MANAGEMENT RELATIONS	**Not material but reported**		
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10, 21	
	103-3 Evaluation of the management approach	GRI 21-23	
GRI 402: Labor/Management Relations 2016	402-1 Minimum notice periods regarding operational changes	GRI 48	Principle 3
OCCUPATIONAL HEALTH AND SAFETY			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10, 15-16	
	103-3 Evaluation of the management approach	GRI 5-10, 15-16	

GRI STANDARD	DISCLOSURE	PAGE NUMBER(S)	UNITED NATIONS GLOBAL COMPACT
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	GRI 49-50	
TRAINING AND EDUCATION			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10, 21	
	103-3 Evaluation of the management approach	GRI 21	
GRI 404: Training and Education 2016	404-1 Average hours of training per year per employee	GRI 51	Principle 6
	404-2 Programs for upgrading employee skills and transition assistance programs	GRI 51	
	404-3 Percentage of employees receiving regular performance and career development reviews	GRI 52	Principle 6
GRI STANDARD	**DISCLOSURE**	**PAGE NUMBER(S)**	**UNITED NATIONS GLOBAL COMPACT**
DIVERSITY AND EQUAL OPPORTUNITY			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10, 21	
	103-3 Evaluation of the management approach	GRI 21	
GRI 405: Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	GRI 53	Principle 6
	405-2 Ratio of basic salary and remuneration of women to men	GRI 55	Principle 6
NON-DISCRIMINATION			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10, 21-22	
	103-3 Evaluation of the management approach	GRI 21-22	
GRI 406: Non-discrimination 2016	406-1 Incidents of discrimination and corrective actions taken	GRI 55	Principle 6
FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10, 21-22	
	103-3 Evaluation of the management approach	GRI 21-22	
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	GRI 21-22, 55	
HUMAN RIGHTS ASSESSMENT			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10, 22	
	103-3 Evaluation of the management approach	GRI 56	

GRI STANDARD	DISCLOSURE	PAGE NUMBER(S)	UNITED NATIONS GLOBAL COMPACT
GRI 412: Human Rights Assessment 2016	412-1 Operations that have been subject to human rights reviews or impact assessments	GRI 55	Principle 1
SUPPLIER SOCIAL ASSESSMENT			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10, 18-21	
	103-3 Evaluation of the management approach	GRI 18-21	
GRI 414: Supplier Social Assessment 2016	414-1 New suppliers that were screened using social criteria	GRI 18-21	Principle 2
GRI STANDARD	DISCLOSURE	PAGE NUMBER(S)	UNITED NATIONS GLOBAL COMPACT
PUBLIC POLICY			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10	
	103-3 Evaluation of the management approach	GRI 22-23	
GRI 415: Public Policy 2016	415-1 Political contributions	GRI 56	Principle 10
CUSTOMER HEALTH AND SAFETY			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10, 13-14	
	103-3 Evaluation of the management approach	GRI 13-14	
GRI 416: Customer Health and Safety 2016	416-1 Assessment of the health and safety impacts of product and service categories	GRI 57	
	416-2 Incidents of non-compliance concerning the health and safety impacts of products and services	GRI 57	
MARKETING AND LABELING			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10, 13-14	
	103-3 Evaluation of the management approach	GRI 13-14	
GRI 417: Marketing and Labeling 2016	417-1 Requirements for product and service information and labeling	GRI 57	
	417-2 Incidents of non-compliance concerning product and service information and labeling	GRI 57	
SOCIOECONOMIC COMPLIANCE			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	GRI 62-64	
	103-2 The management approach and its components	GRI 5-10, 13-14	
	103-3 Evaluation of the management approach	GRI 13-14	
GRI 419: Socioeconomic Compliance 2016	419-1 Non-compliance with laws and regulations in the social and economic area	GRI 58	

Corporate Governance 2018

Corporate Governance Statement 2018

INTRODUCTION

Kemira Oyj's corporate governance is based on the Articles of Association, the Finnish Companies Act and Nasdaq Helsinki Ltd.'s rules and regulations on listed companies. Kemira complies with the Finnish Corporate Governance Code, which is publicly available at **www.cgfinland.fi**.

This statement is presented separately from the annual report by the Board of Directors. Kemira's Audit Committee has reviewed the Corporate Governance Statement, and the Company's Auditor, Deloitte Oy, has checked that the statement has been issued and that the description of the main features of the internal control and risk management related to the financial reporting process included in the statement is consistent with the Financial Statements.

MANAGEMENT BODIES

The Shareholders' Meeting, the Board of Directors and the Managing Director are responsible for Kemira's management and operations. Their tasks are defined based on the Finnish Companies Act and Kemira's Articles of Association.

SHAREHOLDERS' MEETING

Kemira Oyj's shareholders' meeting, or the General Meeting, the Company's highest decision-making body, is held at least once a year. The Annual General Meeting (AGM) must be held each year by the end of May. The AGM makes decisions on matters within its competence under the Companies Act and the Articles of Association, such as the adoption of the financial statements and dividend payout, the discharge of Board members and the Managing Director and his Deputy from liability, the election of the Chairman, Vice Chairman and other members of the Board of Directors and their emoluments, and the election of the auditor and the auditor's fees. Notice to the shareholders' meeting shall be released on the Company's website no earlier than two months and no later than three weeks before the meeting, however, at least nine days before the record date of the meeting. Additionally, if so decided by the Board of Directors, the Company may publish the notice to the shareholders' meeting in one nationwide newspaper.

Kemira Oyj's Annual General Meeting was held in Helsinki on March 21, 2018. The meeting was attended by 553 shareholders either in person or by proxy, together representing around 60% of the shareholders' votes. The documents related to the AGM are available on Kemira's website **www.kemira.com** > Company > Investors > Corporate governance > Annual General Meeting.

NOMINATION BOARD

The 2012 Annual General Meeting decided to establish a Nomination Board consisting of the shareholders or the representatives of the shareholders to prepare annually a proposal for the next AGM concerning the composition and remuneration of the Board of Directors. The Nomination Board consists of the representatives of the four largest shareholders of Kemira Oyj based on the situation on August 31 preceding the AGM, and the Chairman of Kemira Oyj's Board of Directors acts as an expert member. The members of the Nomination Board shall elect a Chairman at the first meeting of the Board.

The Group General Counsel acts as the Secretary of the Nomination Board. The Nomination Board has a Charter approved by the General Meeting that defines more precisely the process to elect its members and chairman as well as its tasks and meeting routines. The Charter is publicly available on the company's website. According to its Charter, the Nomination Board will meet at least two times a year, with authority to convene additional meetings, as circumstances require. The members present at the meeting shall constitute a quorum if at least three of the members are present at the meeting.

As of August 31, 2018, the members of the Nomination Board are Annika Paasikivi, Managing Director of Oras Invest Oy, Antti Mäkinen, Managing Director of Solidium Oy, Reima Rytsölä, Executive Vice President, Varma Mutual Pension Insurance Company, Mikko Mursula, Chief Investment Officer, Ilmarinen Mutual Pension Insurance Company, and the Chairman of the Board Jari Paasikivi as an expert member. Annika Paasikivi is the Chairman of the Nomination Board and Group General Counsel Jukka Hakkila acts as the Secretary of the Nomination Board. During the reporting period, Pekka Paasikivi was the Chairman of the Nomination Board until August 31, 2018.

The Nomination Board met two times in 2018 with an attendance rate of 100%. Each member's participation in the Nomination Board meetings was as follows:

Name	Participation in meetings	Participation percentage
Mursula, Mikko	2/2	100%
Mäkinen, Antti	2/2	100%
Paasikivi, Annika	1/1	100%
Paasikivi, Jari	2/2	100%
Paasikivi, Pekka	1/1	100%
Rytsölä, Reima	2/2	100%
Total	**10/10**	**100%**

BOARD OF DIRECTORS

Composition

The AGM elects the Chairman, Vice Chairman and other members of the Board of Directors. In accordance with the Articles of Association, the Board of Directors comprises 4–8 members. On March 21, 2018, the Annual General Meeting elected six members to the Board of Directors. The AGM re-elected Wolfgang Büchele, Shirley Cunningham, Kaisa Hietala, Timo Lappalainen, Jari Paasikivi and Kerttu Tuomas to the Board of Directors. Jari Paasikivi was elected the Board's Chairman and Kerttu Tuomas was elected the Vice Chairman. Group General Counsel Jukka Hakkila acts as the Secretary of the Board of Directors. All of the Board members are independent of the Company except for Kaisa Hietala. Kaisa Hietala is the Executive Vice President, Renewable Products and a member of the Executive Board at Neste Corporation. Kemira's President and CEO Jari Rosendal is a member of the Board of Directors of Neste Corporation. According to Recommendation 10.f of the Finnish Corporate Governance Code this creates an interlocking control relationship which causes the Board member to be not independent of the company. The Board members are also independent of significant shareholders of the Company except for the Chairman Jari Paasikivi. Jari Paasikivi is the Chairman of the Board of Directors of Oras Invest Oy and Oras Invest Oy owns over 10% of Kemira Oyj's shares. The personal information concerning the members of the Board of Directors can be found in the section Group Management and their holdings can be found under the heading Insiders.

Principles concerning the diversity of the Board of Directors

The Board of Directors has adopted the following principles and targets concerning the diversity of the Board of Directors. When designing the composition of the Board of Directors, the Nomination Board of the company assesses the Board composition from the viewpoint of the company's current and future business needs, while taking into account the diversity of the Board. The diversity of the Board of Directors will be assessed from various viewpoints. Kemira's Board of Directors shall have sufficient and complementary experience and expertise in the key industries and markets relevant to Kemira's business. In addition, an essential element is the personal characteristics of the members and their diversity. The company's aim is that the Board of Directors represent diverse expertise in different industries and markets, diverse professional and educational background, diverse age distribution and both genders. The objective is that both genders are represented in the Board by at least two members. The current Board of Directors of the company complies with the company's diversity targets. Versatile expertise from various industries and markets is represented in the Board of Directors, as well as various professional and educational backgrounds. There is an equal number of male and female directors.

Tasks and duties

According to the Articles of Association, the Board of Directors is tasked with duties within its competence under the Companies Act. It has drawn up a written Charter defining its key duties and procedures. The Charter is publicly available on the company's website. The following is a description of the essential contents of the Charter. The Board of Directors is in charge of corporate governance and the due organization of the Company's operations. It decides on convening and prepares the agenda for the shareholders' meeting and ensures the practical implementation of decisions taken thereby. In addition, the Board of Directors decides on authorizations for representing the Company. The Board of Directors' key duties include matters which, in view of the scope and type of the Company's operations, are uncommon or involve wideranging effects. These include establishing the Company's long term goals and the main strategies for achieving them, approving the annual business plans and budget, defining and approving corporate policies in key management control areas, approving the Company's organizational structure and appointing the Managing Director, his Deputy and members of the Management Board. The Board of Directors approves the Company's capital investment policy and major investments, acquisitions and divestments. It also approves the group treasury policy and major long term loans and guarantees issued by the Company. The Board's duties include ensuring that the Company has adequate planning, information and control systems and resources for monitoring result and managing risks in operations. The Board of Directors monitors and evaluates the performance of Managing Director, his Deputy and members of the Management Board and decides upon their remuneration and benefts. The Board's duty is to ensure continuation of the business operations by succession planning for key persons. The Board defines and approves the main principles for the incentive bonus systems within the Company. The Board of Directors also manages other tasks within its competence under the Companies Act. It is responsible for the due organization of the supervision of the Company's accounting and asset-liability management. The Board of Directors sees to it that the Company's financial statements give a true and fair view of the Company's affairs and that the consolidated financial statements are prepared under the International Financial Reporting Standards (IFRS) and the parent company's financial statements under the acts and regulations in force in Finland (FAS).

The Board of Directors' meetings discuss the Company's profit performance at monthly level. The Board of Directors discusses the Company's audit with the auditor. The Board of Directors evaluates its performance and working methods on an annual basis. According to the Charter of the Board of Directors, the Board must convene regularly and at least eight times a year. The Board of Directors has a quorum when more than half of the Directors are present. The opinion which has been supported by more than half of those present shall become the decision or, in the event of votes being equal, the opinion with which the Chairman concurs.

In 2018, the Board of Directors met 9 times. The average attendance rate at the meetings was 100%. Each director's attendance in the meetings was as follows:

Name	Participation in meetings	Participation percentage
Büchele, Wolfgang	9/9	100%
Cunningham, Shirley	9/9	100%
Hietala, Kaisa	9/9	100%
Lappalainen, Timo	9/9	100%
Paasikivi, Jari	9/9	100%
Tuomas, Kerttu	9/9	100%
Total	**9/9**	**100%**

BOARD COMMITTEES

Kemira Oyj's Board of Directors has appointed two committees: the Audit Committee and the Personnel and Remuneration Committee.

Audit Committee

The Audit Committee works in accordance with its Charter confirmed by the Board of Directors. The Charter is publicly available on the Company's website. It is tasked to assist the Board of Directors in fulfilling its oversight responsibilities for financial reporting process, the system of internal control, the internal and external audit process and Kemira's process for monitoring compliance with laws and regulations and the Kemira Code of Conduct.

The Committee reports to the Board on each meeting. The Audit Committee consists of three members of the Board of Directors. Majority of the members shall be independent of the company and at least one member shall be independent of significant shareholders. According to its Charter, the Audit

Committee shall convene at least four times a year. The Audit Committee has a quorum when at least two members are present in the meeting.

After the 2018 AGM, the Board elected Timo Lappalainen as the Chairman of the Audit Committee and Kaisa Hietala and Jari Paasikivi as members of the Committee. The Audit Committee met 6 times in 2018 with an attendance rate of 100%. Each member's attendance in the Audit Committee meetings was as follows:

Name	Participation in meetings	Participation percentage
Hietala, Kaisa	6/6	100%
Lappalainen, Timo	6/6	100%
Paasikivi, Jari	6/6	100%
Total	**6/6**	**100%**

Personnel and Remuneration Committee

The Personnel and Remuneration Committee works according to its Charter confirmed by the Board of Directors. The Charter is publicly available on the company's website. The Committee assists the Board of Directors by preparation of matters related to compensation of Managing Director, his Deputy and the members of the Management Board, by preparation of matters pertaining to the compensation systems and long-term incentive plans of the Company, by preparation of matters relating to appointment of Managing Director, his Deputy and the members of the Management Board. The Committee also monitors succession planning of the senior management and the senior management's performance evaluation. The Committee plans matters pertaining to the development of the organization and reviews the Remuneration Statement of the Company. The Committee reports to the Board of Directors on each meeting.

The Committee consists of three members, the majority of which shall be independent of the Company. According to its Charter, the Committee shall convene at least twice a year. The members present at the meeting shall constitute a quorum if at least two of the members are present at the meeting.

After the 2018 AGM, the Board elected Jari Paasikivi the Chairman of the Personnel and Remuneration Committee and Kerttu Tuomas and Timo Lappalainen the members of the Personnel and Remuneration Committee. In 2018, the Personnel and Remuneration Committee met 6 times. The attendance rate at the meetings was 100%.

Each member's attendance in the Personnel and Remuneration Committee meetings was as follows:

Name	Participation in meetings	Participation percentage
Lappalainen, Timo	6/6	100%
Paasikivi, Jari	6/6	100%
Tuomas, Kerttu	6/6	100%
Total	**6/6**	**100%**

MANAGING DIRECTOR

The Board of Directors appoints the Managing Director and the Managing Director's Deputy. Under the Articles of Association, the Managing Director is responsible for managing and developing the Company in accordance with the instructions and regulations issued by the Board of Directors, ensuring that the Company's interests are served by the subsidiaries and associated companies under its ownership, and implementing the decisions taken by the Board of Directors. The Managing Director reports to the Board on financial affairs, the business environment and other significant issues. The Managing Director also functions as the Chairman of Kemira's Management Board. Kemira Oyj's Managing Director (President and CEO) is Jari Rosendal, and the Deputy Managing Director is Group General Counsel Jukka Hakkila. The Managing Director and the Managing Director's Deputy, including their related parties, are not involved in any substantial business relationships with the Company.

The personal information concerning the Managing Director and the Managing Director's Deputy is set forth under the section Group Management and their holdings can be found in the section Insiders. The financial benefits related to the Managing Director's employment relationship are described in a section Remuneration Report.

MANAGEMENT BOARD

Kemira's Management Board consists of Managing Director Jari Rosendal (President and CEO), Petri Castrén (CFO), Matthew R. Pixton (CTO), Kim Poulsen (President, Pulp & Paper), Esa-Matti Puputti (EVP, Operational Excellence), Antti Salminen (President, Industry & Water) and Eeva Salonen (EVP, HR).

The Managing Director is the Chairman of the Management Board and the Group General Counsel acts as its Secretary. The Management Board is an operative, non-statutory management body that is responsible for securing the long-term strategic development of the Company. The personal information of the Management Board members are presented in the section Group Management and their holdings can be found in the section Insiders. The decisionmaking process and main principles of remuneration of the members of the Management Board are described in section Remuneration Report.

OPERATIVE ORGANIZATION

Kemira Oyj has organized its business into two customer based segments. The Pulp & Paper segment focuses on serving customers in the pulp and paper industry and the Industry & Water segment focuses on serving customers in the municipal and industrial water treatment as well as oil, gas and mining industries. The segments have a strategic leadership role as they formulate their respective business strategies and guide the strategy implementation within the segment. Operational business responsibilities as well as the Profit & Loss responsibility belong to each of the segments. The segments are guided by policies and guidelines defined by global functions. Global functions are responsible for developing policies, processes, guidelines and tools related to their respective functional areas on a global basis. Such policies and processes are complied with throughout the Company.

Functions also have representatives in each region. Regional functions ensure that the global policies are implemented and adhered to in the regions. They are also responsible for supporting the business locally in the region. Geographically Kemira's operations are divided into three business regions: Europe, Middle East and Africa (EMEA), Americas and Asia Pacific (APAC). The Region Heads provide operational support and co-ordination within the region and steer all regional development projects.

INTERNAL CONTROL

Kemira maintains an internal control system to ensure the effectiveness and efficiency of its operations, including the reliability of financial and operational reporting and compliance with the applicable regulations, policies and practices. Internal control is an integral part of all of Kemira's operations and covers all levels of the Group. The entire Group personnel are responsible for internal control and managers monitor its effectiveness as part of operative management.

Kemira's corporate values, Code of Conduct and Group level policies and procedures guide the corporate governance and internal control in the Group. The internal policies and the Kemira Code of Conduct have been communicated to all Group staff. The Group also provides training concerning the main policies for people who need to know the policies in question. The Code of Conduct is trained to all employees. Every employee has the right and duty to report any violations of the law, the Code of Conduct or Group policies. The main components of internal control are the management and organizational culture, risk assessment, control activities, reporting and communication, as well as monitoring and auditing.

INSIDERS

Kemira Oyj complies with EU Market Abuse Regulation, Finnish Securities Market Act, the rules and regulations issued by the European Securities and Markets Authority (ESMA) and Finnish Financial Supervision Authority (Fin-FSA) as well as the Guidelines for the Insiders of Listed Companies issued by Nasdaq Helsinki Ltd. The company has identified the persons and vice-persons responsible for the various areas of insider administration within the company, including among others compliance in general, decision-making on publishing of insider information and on delaying the publication, maintaining the insider list, overseeing the compliance with the trading restriction as well as the publication of transactions made by the persons discharging managerial responsibilities and their closely associated persons involving stocks and other financial instruments relating to Kemira.

The company has determined, as required by the Market Abuse Regulation, that the persons discharging managerial responsibilities within the company include the Board of Directors, the Managing Director (President & CEO), Management Board as well as the secretary of Board of Directors and Management Board. The persons discharging managerial responsibilities are responsible for identifying their closely associated persons and to disclose the same to Kemira.

Kemira discloses by way of stock exchange release all transactions made by the persons discharging managerial responsibilities and their closely associated persons and

BOARD OF DIRECTORS

Name	Position	Personal Ownership, shares	Ownership through controlled entities
Paasikivi Jari	Chairman of the Board of Directors	228,010	0
Tuomas Kerttu	Vice Chairman of the Board of Directors	14,098	0
Büchele Wolfgang	Member of the Board of Directors	106,592	0
Cunningham Shirley	Member of the Board of Directors	2,753	0
Hietala Kaisa	Member of the Board of Directors	4,236	0
Lappalainen Timo	Member of the Board of Directors	7,641	0
Total		**360,330**	**0**

MANAGEMENT BOARD

Name	Position	Personal Ownership, shares	Ownership through controlled entities
Rosendal Jari	Chief Executive Officer (President & CEO)	77,200	0
Castrén Petri	Member of the Management Board	22,856	0
Pixton Matthew	Member of the Management Board	1,700	0
Poulsen Kim	Member of the Management Board	11,102	0
Puputti Esa-Matti	Member of the Management Board	13,499	0
Salminen Antti	Member of the Management Board	18,716	0
Salonen Eeva	Member of the Management Board	40,088	0
Hakkila Jukka	Other person discharging managerial responsibilities	71,355	0
Total		**256,516**	**0**

companies involving stocks and other financial instruments relating to Kemira, as required by the Market Abuse Regulation.

According to the law, a person discharging managerial responsibilities must not make transactions with stocks or other financial instruments of a listed company during a period of 30 days preceding the publications of the interim or annual financial report of a listed company. Kemira applies a similar 30 days trade restriction to those of Kemira Group employees, who are involved in the preparation or publication of the interim or annual financial report and who have access to group level unpublished financial information. Kemira Oyj's insider list is maintained by the legal department of the company using the SIRE service of Euroclear Finland Oy. The attached table lays out the number of stocks owned by the persons discharging managerial responsibilities in Kemira Oyj, and by companies under their control, on December 31, 2018.

INTERNAL AUDIT

Kemira Group's Internal Audit function provides independent appraisal and assurance for the review of operations within the Group in order to support the management and the Board of Directors in fulfilling their oversight responsibilities. The purpose is to evaluate and contribute to the improvement of risk management, control and governance systems in the Group. The purpose, authority and responsibilities of the unit are defined in the Kemira Internal Audit Charter approved by the Audit Committee. Internal auditors have complete and unrestricted access to all Kemira activities.

Internal Audit is free to determine the scope of internal auditing, the ways of performing its work and communicating its results. Internal Audit reports to the Audit Committee and administratively to the Group General Counsel. Internal Audit reports all of its observations to the responsible management and to the auditor. In addition, Internal Audit reports regularly the most essential and material observations to the Audit Committee in connection with the Audit Committee's meetings. Furthermore, the Internal Audit has a direct and unrestricted access to discuss with the Chairman of the Audit Committee.

AUDIT

Under the Articles of Association, the shareholders' meeting elects an audit firm certified by the Finland Chamber of Commerce as the Company's auditor. The audit firm appoints the Principal Auditor, who is an Authorized Public Accountant certified by the Finland Chamber of Commerce. The auditor's term of office continues until the next Annual General Meeting after the Auditor's election. The 2018 Annual General Meeting elected Deloitte Ltd. as the Company's auditor, with Jukka Vattulainen, APA, acting as the Principal Auditor. In 2018, the audit fee paid globally to the auditor (Deloitte) totaled EUR 1.5 million. In addition, a total of EUR 0.4 million was paid as fees for tax consultation and 0.7 million for other services.

CONTROL AND RISK MANAGEMENT SYSTEMS PERTAINING TO THE FINANCIAL REPORTING PROCESS

Kemira's Board of Directors defines the main principles of risk management and approves the Group's risk management policy. The business segments and functions are responsible for identifying, assessing and managing risks involved in their activities. The Group's Risk Management function coordinates and supports risk management. Kemira's internal control system covers all Group operations, including financial reporting. The internal control activities are carried out in all organizational levels as part of the Group's daily operations. A more detailed description of risks and risk management can be found in Board of Directors Review and on the Company's website at **www.kemira.com** > Company > Investors > Corporate governance > Internal Control and Risk management. A general description of Kemira's internal control system can be found above under the heading Internal control.

The following describes how Kemira's internal control and risk control work in connection with the financial reporting process to ensure that the financial reports published by the Company give essentially correct information of the Company's financial situation.

ROLES AND RESPONSIBILITIES

Kemira's Board of Directors ensures that the Company has sufficient resources for risk management and control, and that the control has been arranged appropriately and that the financial statements provide correct and sufficient information of the Company. The Board of Directors is assisted by the Audit Committee in these tasks. The Managing Director handles the Company's everyday management in accordance with instructions and regulations from the Board of Directors. The Managing Director is responsible for the Company accounting being lawful and that assets are managed reliably.

The CFO is responsible for the general control system of financial reporting. The areas of responsibility between financial administration of the Group and the regions have been defined precisely. Group level financial functions support, monitor, instruct and offer training to the financial organizations of the regions. Group level financial functions are also responsible for the Group's financial reporting and support segment controllers in analyzing business processes. Financial organization in the regions is responsible for the functionality of the accounting processes and correctness of figures in their region. Controlling in segments operates under the segments' business management and analyzes and supports the business processes.

The Group's IT function has a significant role both in financial reporting and internal control, as reporting and many control measures, such as process monitoring are based on IT solutions.

The Internal Audit function including its tasks and areas of responsibility are described more specifically above under the heading Internal Audit.

RISK MANAGEMENT

The Group's financial administration is responsible for managing risks related to financial reporting. The risks are identifed, assessed and managed in connection with the Group's general risk management process and separately as part of financial administration's own operating processes. The Group's financial administration assesses risks it has recognized related to financial reporting. The aim of the risk assessment is to identify and to assess the most significant threats affecting the financial reporting and to define to which function or process risks are related and how the risks would affect the Group's financial reporting if those were to materialize. The Group's financial administration and Risk Management are responsible for that the risks are reassessed regularly.

FINANCIAL REPORTING AND CONTROL

The internal control and risk management systems pertaining to the financial reporting process have been designed so that sufficient certainty on the reliability of the financial reporting can be obtained and that the financial statements have been prepared in accordance with the applicable laws and regulations. Kemira complies with the international standards for financial statements (IFRS) which are applicable in the EU and other requirements of the listed companies. Kemira Group policies and procedures define in detail the processes and principles of accounting and financial reporting to be applied in all Group companies.

The purpose of the policies and Financial Manual is to ensure the reliability of financial reporting. The Group has a uniform and comprehensive Enterprise Resources Planning (ERP) system that ensures fast and reliable access to data. Subsidiaries report their figures from the ERP system to the Group, using a uniform Group reporting system. The financial organizations of the Group, segments and regions check the correctness of the figures in the Group reporting system in accordance with the responsibility areas described above. Proper control of financial administration, financial reporting and accounting processes is a basic requirement for the reliability of financial reporting. The Group financial administration has determined the appropriate control functions, the objectives of each control function and how the effectiveness of the control functions is monitored and checked based on a risk analysis it performs. The control functions are described in the above mentioned risk documentation and financial administration is responsible for their practical implementation.

Financial reporting control is performed either continuously as part of the transactions of the company's monitoring processes such as purchasing and sales processes, or alternatively monthly or annually as part of the reporting process.

COMMUNICATION

By well-functioning internal control environment Kemira aims at securing the timeliness, correctness and transparency of the company's internal and external communication. The most essential guidelines and regulations concerning the financial reporting, internal control and risk management, such as the guidelines regarding the principles of preparation of the financial statements and financial reporting, are available to all employees in the group intranet. Kemira's financial administration regularly arranges trainings regarding internal control and financial reporting as well as using the relevant tools.

MONITORING

The functionality of internal control, risk management and reporting systems is constantly monitored as part of daily management of the Company. Each segment, function and region is responsible for implementing internal control, its efficiency and reliability of reporting within their area of responsibility. The Group financial administration monitors the functionality and reliability of the financial reporting process and principles at Group level. The financial reporting processes are also monitored by the Internal Audit function.

Board of Directors

JARI PAASIKIVI

b. 1954

- Finnish citizen
- M.Sc. (Econ.)
- Chairman of the Board, member of the Audit Committee, chairman of the Personnel and Remuneration Committee
- Independent of the Company
- Main occupation Chairman of the Board of the Directors of Oras Invest Oy, which owns over 10% of Kemira Oyj's shares

KERTTU TUOMAS

b. 1957

- Finnish citizen
- B.Sc. (Econ.)
- Vice Chairman of the Board, member of the Personnel and Remuneration Committee
- Independent of the Company and its significant shareholders

WOLFGANG BÜCHELE

b. 1959

- German citizen
- Dr. rer.nat.
- Member of the Board
- Independent of the Company and its significant shareholders
- Main occupation Exyte AG, CEO

SHIRLEY CUNNINGHAM

b. 1960

- United Kingdom citizen
- MBA
- Member of the Board
- Independent of the Company and its significant shareholders

KAISA HIETALA

b. 1971

- Finnish citizen
- M.Sc.(Physics) and M.Sc. (Env.Sc.)
- Member of the Board, member of the Audit Committee
- Independent of the Company's significant shareholders
- Main occupation Neste Corporation, Executive Vice President, Renewable products

TIMO LAPPALAINEN

b. 1962

- Finnish citizen
- M.Sc. (Eng.)
- Member of the Board, Chairman of the Audit Committee, member of the Personnel and Remuneration Committee
- Independent of the Company and its significant shareholders
- Main occupation Orion Corporation, President & CEO

Further information on the Board of Directors and the Management Board is available on **www.kemira.com**.

Group Management

Managing Director, Deputy Managing Director and members of the Management Board December 31, 2018

JARI ROSENDAL

b. 1965
- M. Sc. (Eng.)
- Managing Director of Kemira Oyj
- Chairman of the Management Board

PETRI CASTRÉN

b. 1962
- LL.M., MBA
- Chief Financial Officer

JUKKA HAKKILA

b. 1960
- LL.M.
- Group General Counsel
- Deputy Managing Director

MATTHEW R. PIXTON

b. 1964
- Ph.D. (Chem. Eng.)
- CTO

KIM POULSEN

b. 1966
- M. Sc. (Econ.)
- President, Pulp & Paper

ESA-MATTI PUPUTTI

b. 1959
- Lic. Tech. (Eng)
- Executive Vice President, Operational Excellence

Further information on the Board of Directors and the Management Board is available on **www.kemira.com**.

ANTTI SALMINEN

b. 1971
- Ph.D (Eng.)
- President, Industry & Water

EEVA SALONEN

b. 1960
- M.A. (Edu.)
- Executive Vice President, Human Resources

Further information on the Board of Directors and the Management Board is available on **www.kemira.com**.

Remuneration Statement 2018

INTRODUCTION

Kemira remuneration statement describes the company's remuneration principles and the remuneration of the Board of the Directors and the operative management, i.e. the Managing Director, the Deputy Managing Director and the other members of the Management Board in 2018. The remuneration statement has been prepared in accordance with the Finnish Corporate Governance Code.

The remuneration statement is divided into following sections:

- Main principles of remuneration
- Decision-making procedure concerning the remuneration
- Remuneration report
- Management remuneration
- Board of Directors remuneration

MAIN PRINCIPLES OF REMUNERATION

Kemira reviews its remuneration principles and practices on a regular basis. The remuneration principles are applied to all Kemira employees. Transparency, market driven reward and pay for performance are the main principles of rewarding at Kemira.

The remuneration in Kemira consists of the following main elements:

Base pay and benefits follow local market practices, laws and regulations.

Short-term bonus plans aim to reward for both company and individual performance.

Long-term share incentive plan aims to commit key employees to Kemira, and to align the objectives and interest of the shareholders and the participants in the plan.

Non-monetary rewarding is an important part of the total remuneration. Kemira is actively developing well-being at work, as well as providing opportunities for development of own job role.

DECISION-MAKING PROCEDURE CONCERNING THE REMUNERATION

The Annual General Meeting decides the remuneration of the Board of Directors for one term of office at a time. The Board of Directors decides the salaries, other remuneration and the terms of employment of the Managing Director, the Deputy Managing Director and the other members of the Management Board. The Personnel and Remuneration Committee of the Board assists the Board of Directors by preparing matters related to remuneration of the Managing Director, his Deputy and the other members of the Management Board and by preparing matters pertaining to the compensation programs and long-term share incentive plans of the company.

REMUNERATION REPORT

MANAGEMENT REMUNERATION

Remuneration of the Managing Director (President and CEO), his Deputy and the other members of the Management Board comprises a base salary, benefits and performance based incentive plans. The incentive plans consist of an annual short-term bonus plan and a long-term share incentive plan.

Members of Kemira Management Board who are employed by a Finnish Kemira company do not have any supplementary pension arrangements in addition to the statutory pensions. Members of Kemira Management Board who are employed by a foreign Kemira company participate in pension systems based on statutory pension arrangements and market practices in their local countries. The Kemira policy is that all new supplementary pension arrangements are defined contribution plans.

Depending on country practices, mutual termination notice period of 1 to 6 months applies to the members of the Management Board except for the Managing Director. In addition, a severance payment of 6 to 9 months' salary is paid to the member of the Management Board if the company terminates the employment agreement without a cause attributable to the person.

Remuneration paid to the Management in 2018

In 2018, the total remuneration paid to Managing Director Jari Rosendal amounted to EUR 1,021,520 (2017: EUR 891,000), including base salary and benefits, short-term bonus based on 2017 performance period of EUR 109,080 (2017: 324,000) and long-term share incentive based on the performance period 2017 of 13,600 shares, value EUR 345,440 including cash portion of the reward (2017: 0 shares, EUR 0).

No remuneration was paid to the Deputy Managing Director based on Managing Director substitution in 2018.

In 2018, the total remuneration paid to the other members of the Management Board amounted to EUR 2,835,124 (2017: EUR 2,796,597), including base salaries and benefits, short-term bonuses of EUR 265,561 (2017: EUR 929,188) and long-term share incentives based on the performance period 2017 33,220 shares, total value of EUR 803,147 including cash portion (2017: 0 shares, EUR 0).

EMPLOYMENT TERMS AND CONDITIONS OF THE MANAGING DIRECTOR AS OF DECEMBER 31, 2018

BASE SALARY	Annual base salary is EUR 567,000 per year, including a car benefit and a mobile phone benefit.
SHORT-TERM BONUS PLAN	Based on terms approved by the Board of Directors, the maximum bonus is 70 percent of the annual base salary.
LONG-TERM SHARE INCENTIVE PLAN	Based on the terms of the share plan, the maximum reward is determined as a number of shares and a cash portion intended to cover taxes and the tax related costs arising from the reward.
PENSION PLAN	Finnish Employee's Pension Act (TyEL), which provides pension security based on years of service and earnings as stipulated by the law. The retirement age of the Managing Director is based on the Finnish Employee's Pension Act. No supplementary pension arrangements in addition to the statutory pension.
TERMINATION	A mutual termination notice period of 6 months applies to the Managing Director. The Managing Director is entitled to a severance pay of 12 months' salary in addition to the salary earned during the notice period, in case the company terminates his service.
INSURANCES	The Managing Director has insurances for life and permanent disability, private accident, business travel, and directors' and officers' liability. The Managing Director participates in the company sickness fund.

REMUNERATION REPORT	Salary and benefts (EUR)	Short-term bonus plan (EUR)	Long-term share incentive plan (EUR)	Total 2018 (EUR)	Total 2017 (EUR)
Managing Director Jari Rosendal	567,000	109,080	345,440	1,021,520	891,000
Other members of the management board	1,766,416	265,561	803,147	2,835,124	2,796,597

Other members of the Management Board 2018: CFO Petri Castrén, CTO Matthew R. Pixton, President Pulp and Paper Kim Poulsen, EVP Operational Excellence Esa-Matti Puputti, President Industry and Water Antti Salminen, EVP Human Resources Eeva Salonen.
Other members of the management board 2017: CFO Petri Castrén, President Pulp and Paper Kim Poulsen, President Industry and Water Antti Salminen, EVP Operational Excellence Esa-Matti Puputti, EVP Human Resources Eeva Salonen, CTO Heidi Fagerholm January 1 – October 31, 2017, President Oil and Mining Tarjei Johansen, January 1 – March 8, 2017, EVP Projects and Manufacturing Technology Michael Löffelmann January 1 – January 19, 2017.

SHORT-TERM BONUS PLAN FOR THE MANAGEMENT

The short-term bonus plan for the Managing Director, Deputy Managing Director and other members of the Management Board is determined based on the achievement of the Kemira Group, Segment level and role based performance targets set by the Board of Directors for each financial year.

SHORT-TERM BONUS MAXIMUM REWARD 2017–2018

The maximum bonus for the Managing Director was 70% of the annual base salary, for the Managing Director's Deputy 60% and for the other members of the Management Board 60 to 80% of the annual base salary.

SHORT-TERM BONUS CRITERIA 2017

In 2017, performance targets were determined on the base of the operative cash flow after investing activities, operative EBITDA, safety related KPI's of Kemira Group, and role based targets. The reward from the 2017 earning period was paid in February 2018.

SHORT-TERM BONUS CRITERIA 2018

In 2018, performance targets were determined on the basis of the operative cash flow after investing activities, operative EBITDA margin, safety related KPI's of Kemira Group, and role based targets. The reward from the 2018 earning period will be paid in February 2019.

LONG-TERM SHARE INCENTIVE PLAN 2015–2017

On December 15, 2014, the Board of Directors of Kemira Oyj decided to establish a long-term share incentive plan directed to a group of key employees in Kemira. The aim of the plan is to combine the objectives of the shareholders and the persons participating in the plan in order to increase the value of Kemira, to commit the participants to Kemira, and to offer them a competitive reward plan based on earning Kemira's shares. The Personnel and Remuneration Committee received advice for the planning work of the long-term share incentive plan from external incentive advisor.

PERFORMANCE PERIOD 2017

The criterion of the plan for the performance period 2017 was based on the Kemira Group's Intrinsic Value. The reward from the 2017 earning period was paid partly in Kemira Oyj shares and partly in cash in 2018. Based on the 2017 performance period a reward of 149,328 Kemira Oyj shares was paid out. Additionally a cash portion intended to cover taxes and tax related costs was paid out to the participants. The plan was directed to 77 people in 2017.

LONG-TERM SHARE INCENTIVE PLAN 2018

On February 7, 2018 the Board of Directors of Kemira Oyj resolved to continue the long-term share incentive plan directed to a group of key employees in Kemira for the performance period 2018. The aim of the plan is to combine the objectives of the shareholders and the persons participating in the plan in order to increase the value of Kemira, to commit the participants to Kemira, and to offer them a competitive reward plan based on earning Kemira´s shares. The Personnel and Remuneration Committee received advice for the planning work of the long-term share incentive plan from external incentive advisor.

The long-term share incentive plan 2018 includes one performance period, the year 2018. The potential reward is based on the Kemira Group´s Intrinsic Value. The potential reward is paid partly in Kemira´s shares and partly in cash in 2019. The potential reward to be paid in spring 2019 is at maximum 484,000 Kemira Oyj shares and additionally a cash portion intended to cover taxes and tax related costs. The plan was directed to 78 people in 2018.

LONG-TERM SHARE INCENTIVE PLAN MAIN TERMS AND CONDITIONS 2015-2017 AND 2018

EARNING PERIODS AND CRITERIA	The long-term share incentive plan includes four performance periods: calendar years 2015, 2016, 2017 and 2018. The Board of Directors of Kemira decided on the plan's performance criteria and on the required performance levels for each criterion at the beginning of each performance period.
REWARDS	The potential reward is paid partly in Kemira's shares and partly in cash. The cash portion is intended to cover the taxes and tax-related costs arising from the reward to the participant.
RESTRICTION PERIOD	The shares paid as reward may not be transferred during the restriction period, which will end two years from the end of the performance period.
EMPLOYMENT CONDITIONS	As a rule, no reward will be paid, if a participant's employment or service ends before the reward payment. Should a participant's employment or service end during the restriction period, as a rule, he or she must gratuitously return the shares given as reward.
CLAWBACK	Clawback provisions apply to plan rewards in exceptional circumstances, such as misconduct or misstatement of fnancial results.
SHARE OWNERSHIP GUIDELINES	The Board of Directors recommends that a member of the Management Board will own such number of Kemira's shares that the total value of his or her shareholding corresponds to the value of his or her annual gross salary as long as the membership continues. If this recommendation is not yet fulflled, the Board of Directors recommends that a member of the Management Board will hold 50 per cent of the number of shares given on the basis of this plan also after the end of the restriction period, as long as his or her shareholding in total corresponds to the value of his or her annual gross salary.

LONG-TERM SHARE INCENTIVE PLAN 2019-2023

In December 2018, the Board of Directors of Kemira Oyj decided to establish a long-term share incentive plan for the years 2019 – 2023 directed to a group of key employees in Kemira. The aim of the plan is to combine the objectives of the shareholders and the persons participating in the plan in order to increase the value of Kemira, to commit the participants to Kemira, and to offer them a competitive reward plan based on earning Kemira's shares.

The long-term share incentive plan includes altogether two one-year performance periods, being years 2019 and 2020, and three three-year performance periods; years 2019 - 2021, 2020-2022 and 2021-2023. This structure enables a gradual shift from the current one-year performance period to a three-year performance period. The three-year performance periods are considered to better support the purpose of the plan in alignment with the shareholder interests and the implementation of the long-term goals of Kemira.

The Personnel and Remuneration Committee received advice for the planning work of the long-term share incentive plan from external incentive advisor.

PERFORMANCE PERIODS 2019 AND 2019-2021

During the performance periods 2019 and 2019-2021, the long-term share incentive plan is directed to approx. 90 people. The rewards to be paid on the basis of the performance periods 2019 and 2019-2021 will amount up to a maximum total of 643,500 Kemira Oyj shares.

The potential reward of the plan from the performance period 2019 will be based on Kemira Group´s Intrinsic Value and paid out in 2020. The potential reward of the plan from the performance period 2019-2021 will be based on Kemira Group´s average Intrinsic Value 2019-2021 and paid out in 2022.

LONG-TERM SHARE INCENTIVE PLAN MAIN TERMS AND CONDITIONS 2019-2023

EARNING PERIODS AND CRITERIA	The long-term share incentive plan includes two one-year performance periods; years 2019 and 2020 and three three-year performance periods; years 2019-2021, 2020-2022 and 2021-2023. The Board of Directors of Kemira decides on the plan's performance criteria and on the required performance levels for each criterion at the beginning of each performance period. The Board of Directors of Kemira shall decide on the plan's participants and share allocations in the beginning of each performance period.
REWARDS	The potential reward is paid partly in Kemira's shares and partly in cash. The cash portion is intended to cover the taxes and tax-related costs arising from the reward to the participant.
RESTRICTION PERIOD	For the one year performance periods (2019 and 2020), the shares paid as reward may not be transferred during the restriction period, which will end two years from the end of the performance period. No restriction period applies to the three-year performance periods.
EMPLOYMENT CONDITIONS	As a rule, no reward will be paid, if a participant's employment or service ends before the reward payment. Should a participant's employment or service end during the restriction period, as a rule, he or she must gratuitously return the shares given as reward.
CLAWBACK	Clawback provisions apply to plan rewards in exceptional circumstances, such as misconduct or misstatement of financial results.
SHARE OWNERSHIP RECOMMEN-DATION	The Board recommends that a member of the Management Board shall hold at least 50 per cent of the number of shares given on the basis of this plan also after the end of the restriction period, until his or her shareholding in total corresponds to the value of his or her annual gross salary.

BOARD OF DIRECTORS REMUNERATION

According to the decisions made in the Annual General Meeting 2018, the members of the Board of Directors are paid an annual fee and a fee per meeting. The members of the Board of Directors are not eligible for the short-term bonus plan or the long-Term share incentive plan, or supplementary pension plans of Kemira Oyj.

The annual fees are as follows:

- the Chairman will receive EUR 80,000 per year,
- the Vice Chairman and the Chairman of the Audit Committee EUR 49,000 per year and
- the other members EUR 39,000 per year.

A fee payable for each meeting of the Board and its committees are as follows:

- EUR 600 for the members residing in Finland,
- EUR 1,200 for the members residing elsewhere in Europe and
- EUR 2,400 for the members residing outside Europe.

The meeting fees are to be paid in cash. Travel expenses are reimbursed according to Kemira' s travel policy. In addition, the Annual General Meeting decided that the annual fee shall be paid as a combination of the company's shares and cash in such a manner that 40% of the annual fee is paid with Kemira shares owned by the company or, if this is not possible, Kemira shares acquired from the securities market, and 60% is paid in cash. The Annual General Meeting decided that the shares will be transferred to the members of the Board of Directors within two weeks after the release of Kemira' s interim report January 1–March 31, 2018.

The following amounts of shares were paid on May 8, 2018 as part of the annual fee decided by the Annual General Meeting 2018:

- the Chairman received 2,904 shares,
- the Vice Chairman and Chairman of the Audit Committee 1,779 shares and
- the other members 1,416 shares.

There are no special terms or conditions associated with owning these shares.

THE REMUNERATION OF THE BOARD OF DIRECTORS 2018

	2018 (EUR)	2017 (EUR)
Jari Paasikivi, chairman	91,489	90,885
Kerttu Tuomas, vice chairman	57,087	57,085
Wolfgang Büchele	48,351	49,549
Shirley Cunningham	57,951	57,949
Winnie Fok	(N/A)	4,800
Kaisa Hietala	47,151	47,749
Juha Laaksonen	(N/A)	2,400
Timo Lappalainen	60,687	59,485
Total	**362,716**	**369,902**

Kemira

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Board of Directors' review 2018

In 2018, Kemira Group's revenue increased 4% to EUR 2,592.8 million (2,486.0) mainly due to higher sales prices. Revenue in local currencies, excluding acquisitions and divestments, increased by 7% with all businesses demonstrating growth.

Operative EBITDA increased 4% to EUR 323.1 million (311.3), as higher sales prices more than offset the increase in variable costs. Operative EBITDA margin was 12.5% (12.5%).

EBITDA increased by 11% to EUR 314.8 million (282.4) and the difference to operative EBITDA growth is explained by items affecting comparability.

EPS increased by 13% to EUR 0.58 (0.52) mainly due to higher operative EBITDA and lower items affecting comparability.

The Board of Directors proposes a cash dividend of EUR 0.53 per share (0.53) to the Annual General Meeting 2019, totaling EUR 81 million (81).

KEY FIGURES AND RATIOS

EUR million	2018	2017
Revenue	2,592.8	2,486.0
Operative EBITDA	323.1	311.3
Operative EBITDA, %	12.5	12.5
EBITDA	314.8	282.4
EBITDA, %	12.1	11.4
Operative EBIT	173.8	170.3
Operative EBIT, %	6.7	6.9
EBIT	148.2	141.4
EBIT, %	5.7	5.7
Finance costs, net	-25.0	-28.9
Profit before taxes	123.3	112.6
Net profit for the period	95.2	85.2
Earnings per share, EUR	0.58	0.52

EUR million	2018	2017
Capital employed*	1,781.4	1,763.2
Operative ROCE*, %	9.8	9.7
ROCE*, %	8.3	8.0
Cash flow from operating activities	210.2	205.1
Capital expenditure excl. acquisitions	150.4	190.1
Capital expenditure	193.7	190.1
Cash flow after investing activities	29.0	13.0
Equity ratio, % at period-end	44	44
Equity per share, EUR	7.80	7.61
Gearing, % at period-end	62	59
Personnel at period-end	4,915	4,732

*12-month rolling average (ROCE, % based on the EBIT).
Kemira provides certain financial performance measures (alternative performance measures), which are not defined by IFRS. Kemira believes that alternative performance measures followed by capital markets and Kemira management, such as organic growth**, EBITDA, operative EBITDA, cash flow after investing activities as well as gearing, provide useful information about Kemira's comparable business performance and financial position. Selected alternative performance measures are also used as performance criteria in remuneration. Kemira's alternative performance measures should not be viewed in isolation to the equivalent IFRS measures and alternative performance measures should be read in conjunction with the most directly comparable IFRS measures. Definitions of the alternative performance measures can be found in the definitions of the key figures in this report, as well as at www.kemira.com > Investors > Financial information. All the figures in this interim report have been individually rounded, and consequently the sum of the individual figures may deviate slightly from the sum figure presented.
**Revenue growth in local currencies, excluding acquisitions and divestments.

FINANCIAL PERFORMANCE, FULL YEAR 2018

Kemira Group's **revenue** increased by 4%, driven mainly by growth in sales prices. Revenue in local currencies, excluding acquisitions and divestments, increased by 7%.

Liikevaihto	2018 EUR million	2017 EUR million	Δ-%	Organic growth*, %	Currency impact, %	Acq. & div. impact, %
Pulp & Paper	1,520.2	1,476.9	+3	+6	-3	0
Industry & Water	1,072.6	1,009.1	+6	+9	-3	0
Total	2,592.8	2,486.0	+4	+7	-3	0

* Revenue in local currencies, excluding acquisitions and divestments

Geographically, the revenue split was as follows: EMEA (Europe, Middle East, Africa) 52% (52%), the Americas 39% (39%), and Asia Pacific 9% (9%).

Operative EBITDA increased by 4% mainly due to higher sales prices, which more than offset increased variable costs. The EUR 16 million volume growth benefit was offset by the EUR 14 million negative currency impact.

Variance analysis, EUR million	Jan–Dec
Operative EBITDA, 2017	311.3
Sales volumes	+15.9
Sales prices	+149.5
Variable costs	-129.0
Fixed costs	-7.3
Currency exchange	-14.0
Others	-3.3
Operative EBITDA, 2018	323.1

Operative EBITDA	2018 EUR million	2017 EUR million	Δ-%	2018 %-margin	2017 %-margin
Pulp & Paper	191.7	197.7	-3	12.6	13.4
Industry & Water	131.5	113.6	+15	12.3	11.3
Total	323.1	311.3	+4	12.5	12.5

EBITDA increased by 11%. The difference to operative EBITDA is explained by items affecting comparability. **Items affecting comparability within EBITDA** included organizational restructuring costs, a gain on sale, and positive adjustments for transaction costs. In the previous year the figure mainly resulted from the organizational restructuring costs and the EUR -12.7 million settlement for the damage claim relating to the alleged old infringement of competition law in the hydrogen peroxide business between 1994–2000.

Items affecting comparability, EUR million	2018	2017
Within EBITDA	-8.3	-28.9
Pulp & Paper	-3.9	-17.9
Industry & Water	-4.4	-11.0
Within depreciation, amortization and impairments	-17.3	0.0
Pulp & Paper	-7.9	0.0
Industry & Water	-9.3	0.0
Total items affecting comparability in EBIT	-25.6	-28.9

Depreciation, amortization and impairments increased to EUR 166.6 million (141.0) including the EUR 15.9 million (16.7) amortization of purchase price allocation. Depreciation, amortization and impairments included **items affecting comparability** of EUR -17.3 million (0.0) related to the write-downs of production units. The write-downs were part of the long-term polymer manufacturing optimization in Industry & Water and the decision to direct more hydrogen peroxide capacity to pulp customers in Pulp & Paper.

Operative EBIT increased by 2% as higher sales prices and volumes more than offset the increase in variable costs and the negative currency impact. **EBIT** increased by 5% and the difference between the two is explained by items affecting comparability.

Finance costs, **net** totaled EUR -25.0 million (-28.9). **Income taxes** were EUR -28.1 million (-27.4). The reported tax rate was 23% (24%). **Net profit for the period** increased by 12% mainly due to higher operative EBITDA and items affecting comparability

FINANCIAL POSITION AND CASH FLOW

Cash flow from operating activities in 2018 increased to EUR 210.2 million (205.1) due to higher operative EBITDA while cash flow after investing activities increased to EUR 29.0 million (13.0) mainly due to lower capital expenditure excluding acquisitions.

At the end of the period, interest-bearing liabilities totaled EUR 886 million (861). The average interest rate of the Group's interest-bearing liabilities was 1.9% (2.0%). In December, Kemira signed bilateral loan agreements of EUR 150 million, which will mature in 2023, replacing bilateral loan agreements that mature in 2020. The duration of the Group's interest-bearing loan portfolio was 31 months (33). Fixed-rate loans accounted for 79% of the interest-bearing liabilities (75%).

Short-term liabilities maturing in the next 12 months amounted to EUR 240 million (191). On December 31, 2018, cash and cash equivalents totaled EUR 145 million (166). The Group has a total of EUR 440 million of undrawn committed credit facilities.

At the end of the period, Kemira Group's net debt was EUR 741 million (694). The equity ratio was 44% (44%), while the gearing was 62% (59%).

Kemira is exposed to transaction and translation currency risks. The Group's most significant transaction currency risks arise from the Swedish krona, the U.S. dollar and the Canadian dollar. At the end of the year, the denominated 12-month exchange rate risk of the Swedish krona against the euro had an equivalent value of approximately EUR 50 million, 74% of which was hedged on an average basis. The U.S. dollar denominated exchange rate risk was approximately EUR 24 million, 59% of which was hedged on an average basis. The Canadian dollar denominated exchange rate risk against the U.S. dollar was approximately EUR 25 million, 24% of which was hedged on an average basis. The Canadian dollar denominated exchange rate risk against euro was EUR 15 million, of which 69 % was hedged on an average basis. In addition, Kemira is exposed to other transaction risks which mainly are related to the Chinese renminbi, Norwegian krona, Brazilian real, Polish zloty, and Russian ruble with the total annual exposure in these currencies amounting to approximately EUR 72 million.

As Kemira's consolidated financial statements are compiled in euros, Kemira is also subject to a currency translation risk to the extent to which the income statement and balance sheet items of subsidiaries located outside Finland are reported in a currency other than the euro. The most significant translation exposure on revenue and EBITDA derive from the U.S. dollar and the Canadian dollar. Strengthening of currencies against the euro would increase Kemira's revenue and EBITDA through a translation effect.

CAPITAL EXPENDITURE

In 2018, capital expenditure excluding acquisitions decreased 21% to EUR 150.4 million (190.1). Capital expenditure can be broken down as follows: expansion capex 29% (35%), improvement capex 36% (34%), and maintenance capex 35% (31%). The largest investment during the year was the expansion of CEOR polymer capacity in Botlek, Netherlands.

Including acquisitions, capital expenditure amounted to EUR 193.7 million (190.1). Kemira completed the closing of the deal with AKD producer in China. Kemira formed a joint venture - Kemira TC Wanfeng Chemicals Yanzhou ("NewCo") - with Shandong Tiancheng Wanfeng Chemical Technology ("TC Wanfeng"). Kemira has 80% and TC Wanfeng 20% of NewCo.

RESEARCH AND DEVELOPMENT

Research and Development expenses totaled EUR 30.2 million (30.3) in 2018 representing 1.2% (1.2%) of the Group's revenue.

Kemira's Research and Development is an enabler of growth and further differentiation. New product launches contribute to the efficiency and sustainability of customer processes and to improved profitability. Both Kemira's future market position and profitability depend on the company's ability to understand and meet current and future customer needs and market trends and on its ability to innovate new differentiated products and applications.

At the end of 2018, Kemira had 366 (389) patent families, including 1,546 (1,525) granted patents, and 1,042 (1,017) pending applications. During 2018, Kemira applied for 34 (52) new patents. Commercialization of 10 projects related to new products started in 2018 and nine of them are designed to improve customer resource efficiency.

HUMAN RESOURCES

At the end of the period, Kemira Group had 4,915 employees (4,732). Kemira employed 802 people in Finland (803), 1,777 people elsewhere in EMEA (1,768), 1,559 in the Americas (1,514), and 777 in APAC (647).

NON-FINANCIAL INFORMATION

CORPORATE RESPONSIBILITY PRIORITIES

Kemira has systematic procedures in place to evaluate and address economic, environmental and social impacts from its own operations and business relationships. Our corporate responsibility priorities are based on the most material impact through 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 agreed sustainability principles. Kemira is a signatory of The United Nations Global Compact as our commitment to implement universal sustainability principles and to respect and promote human rights, implement decent work practices, reduce our environmental impact, and combat corruption. Kemira is also committed to operate according to the principles of Responsible Care®, a voluntary commitment made by the global chemicals industry to drive continuous improvement and achieve excellence in environmental, health and safety, and security performance.

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

Sustainable products and solutions
- Product sustainability: Products improving our customers' sustainability, product design for use-phase resource efficiency.
- Product stewardship: chemical safety management throughout the life cycle of our products.

Responsible operations and supply chain
- Responsible management of our operations to ensure staff safety 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: employee engagement and development of employee competence.
- Integrity: responsible business practices in our own operations and with our business partners.

Kemira measures progress in the priority areas through group-level key performance indicators (KPI) and targets that are approved by the Management Board and reviewed by the Board of Directors. The relevant management processes relating to material corporate responsibility issues are being developed and implemented as part of our integrated management system.

SUSTAINABLE PRODUCTS AND SOLUTIONS

Kemira is committed to ensuring the sustainability of our products and solutions. 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.

Kemira's New Product Development (NPD) process evaluates the economic, environmental, and social impacts of any new product, compared to existing benchmarked solutions. Successful NPD projects must demonstrate both improved sustainability and business benefits at each decision gate to justify the project's continuation, and ultimately the product launch.

Kemira's product stewardship policy defines principles for the proactive management of the health, safety and environmental aspects of a product throughout its life cycle. We also work to find less hazardous and more sustainable alternatives for raw materials. Other measures include ensuring safe transportation, handling, storage and disposal of our products in the value chain.

RESPONSIBLE OPERATIONS AND SUPPLY CHAIN

Kemira is committed to ensuring responsible operations to protect our assets, our environment, employees, contractors, customers and communities. 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. Kemira follows the principle that all operations under our Integrated Management System meet the international standards ISO 9001:2015 for quality management, ISO 14001:2015 for environmental management and OHSAS 18001:2007 for occupational health and safety management. Our energy management system is certified to the ISO 50001:2001 standard.

Ensuring workplace safety is a key priority in all our operations. We strive for continuous improvement to reduce our environmental impacts. Kemira has set a target to reduce greenhouse emissions by 20 percentage units by 2020 compared to the baseline year 2012.

Kemira is committed to ensuring compliance with responsible business practices throughout our supply chain. Kemira's Code of Conduct for Suppliers, Distributors and Agents (CoC SDA) sets out principles for responsible business conduct, respect for human rights and provision of appropriate working conditions, and environmental responsibility. Compliance with the Kemira CoC-SDA is required by all our suppliers and business partners. Our strategic, critical, and large-spend suppliers are requested to participate in a sustainability assessment process sustainability evaluation based on the international sustainability standards of the Global Reporting Initiative, The United Nations Global Compact, and the ISO 26000 social responsibility guidance standard. Based on the results of the assessment, the suppliers are classified into risk categories and the necessary actions are defined. Suppliers with ongoing improvement plans are always reassessed the following year, and high-risk suppliers are audited.

PEOPLE AND INTEGRITY

Culture and commitment to our employees are an important success factor in our business. Kemira's performance management process aligns our strategic targets with each employees' personal targets, performance evaluation competences and development plans. The process is a part of Kemira's leadership culture and it forms the backbone of our management system.

Our Code of Conduct is the foundation for our business conduct in Kemira. It sets the minimum standards of expected behavior for our employees and business partners. Kemira is committed to the principles of The Universal Declaration of Human Rights and The United Nations Global Compact, and we also expect our suppliers and business partners to abide by these principles. Kemira principles of anti-corruption are included in the Code of Conduct. Kemira does not tolerate improper or corrupt payments made either directly or indirectly to a customer, government official or third party, including facilitation payments, improper gifts, entertainment, gratuities, favors, donations or any other improper transfer of value. We engage only reputable sales representatives and other third parties who share the same commitment.

Code of Conduct training is mandatory for all our employees, and there are advisory, monitoring and reporting procedures in place to ensure proper accomplishment of the Code. We maintain an ethics and compliance hotline for employees to enable them to report potential violations of the Code of Conduct or any other concerns.

Mandatory anti-bribery training is provided for selected groups of personnel who need to have a comprehensive understanding of Kemira's anti-corruption principles. Awareness of anti-corruption matters is employed through our Code of Conduct training to all employees. Kemira has conducted an ethics and compliance risks assessment to evaluate corruption-related and bribery-related risks in its operations. There were no confirmed incidents of corruption or public legal cases regarding corruption in 2018.

NON-FINANCIAL REPORTING

More detailed information is presented in Kemira Annual Report 2018, in the section on the business overview of GRI disclosures. The non-financial disclosures are based on the Global Reporting Initiative disclosures, which are prepared in accordance with the GRI standards (2016) and externally assured by an independent third-party Deloitte.

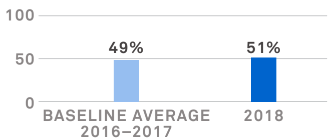
CORPORATE RESPONSIBILITY PERFORMANCE

Sustainable products and solutions

Product sustainability

IN PROGRESS

Product sustainability
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.

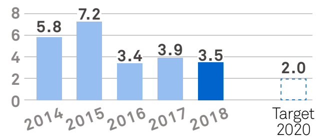


Responsible operations and supply chain

Workplace safety

IN PROGRESS

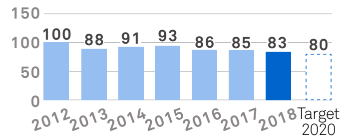
Achieve zero injuries on long term;
TRIF* 2.0 by end of 2020.



Climate change

IN PROGRESS

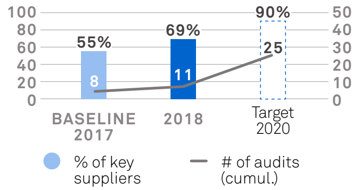
Kemira Carbon Index ≤ 80 by end of 2020 (2012 = 100). This KPI is reported once a year.



Supplier management

IN PROGRESS

Share of direct key suppliers screened through sustainability assessments and audits (cumulative %). The target includes 5 sustainability audits for highest risk** suppliers every year, and cumulatively 25 by 2020.



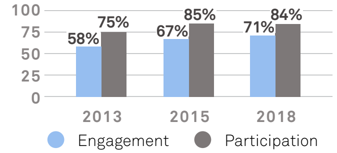
* TRIF = Number of Total Recordable Injury Frequency per million hours, Kemira + contractor
** Suppliers with lowest sustainability assessment score

People and integrity

Employee engagement index based on Voices@Kemira biennial survey

AHEAD OF TARGET

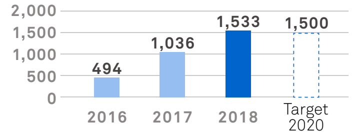
The index at or above the external industry norm.
The participation rate target in Voices@Kemira is 75% or above.



Leadership development activities provided

AHEAD OF TARGET

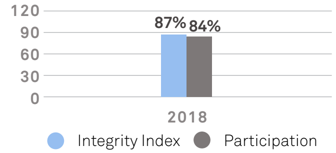
Two leadership development activities per people in manager position during 2016–2020, the cumulative target is 1,500 by 2020.



Integrity index

IN PROGRESS

New KPI to measure compliance with the Kemira Code of Conduct. The target is to maintain the Integrity Index level above the external industry norm.



SEGMENTS

PULP & PAPER

Pulp & Paper has unique expertise in applying chemicals and supporting pulp & paper producers in innovating and constantly improving their operational efficiency. The segment develops and commercializes new products to fulfill customer needs, ensuring the leading portfolio of products and services for paper wet-end, focusing on packaging and board, as well as on tissue. Pulp & Paper is leveraging its strong application portfolio in North America and EMEA, while also building a strong position in the emerging Asian and South American markets.

EUR million	2018	2017
Revenue	1,520.2	1,476.9
Operative EBITDA	191.7	197.7
Operative EBITDA, %	12.6	13.4
EBITDA	187.8	179.9
EBITDA, %	12.4	12.2
Operative EBIT	91.6	104.8
Operative EBIT, %	6.0	7.1
EBIT	79.8	86.9
EBIT, %	5.2	5.9
Capital employed*	1,177.6	1,165.2
Operative ROCE*, %	7.8	9.0
ROCE*, %	6.8	7.5
Capital expenditure excl. acquisitions	85.1	138.3
Capital expenditure	128.4	138.3
Cash flow after investing activities	29.9	15.7

*12-month rolling average

The segment's **revenue** increased by 3%, driven by higher sales prices and volumes while currency exchange rates had a -3% impact. Revenue in local currencies, excluding acquisitions and divestments, increased by 6%.

In **EMEA**, revenue increased by 6% to EUR 826.1 million (780.0) mainly due to higher sales prices, especially in caustic soda. The start-up of the new sodium chlorate line in Finland, opened in the second half of 2017, had a positive impact on sales volumes.

In the **Americas**, revenue decreased by 3% to EUR 488.3 million (505.9) due to a negative currency impact while sales prices increased in both regions. In North America, sales price growth was driven by bleaching chemicals and in South America, sales prices increased in all product categories.

In **APAC**, revenue increased by 8% to EUR 205.8 million (191.0) as a result of strong demand despite supply issues of key raw material at times for AKD product. The demand was particularly strong for sizing chemicals. Currencies had a negative impact on revenue.

Operative EBITDA decreased 3% due to the negative currency impact and higher fixed costs while growth in sales prices offset increased variable costs. **EBITDA** increased 4% mainly due to lower items affecting comparability.

INDUSTRY & WATER

Industry & Water supports municipalities and water intensive industries in the efficient and sustainable use of resources. In water treatment we provide assistance in optimizing various stages of the water cycle. In oil and gas applications our chemistries enable improved yield from existing reserves and reduced water and energy use.

EUR million	2018	2017
Revenue	1,072.6	1,009.1
Operative EBITDA	131.5	113.6
Operative EBITDA, %	12.3	11.3
EBITDA	127.0	102.5
EBITDA, %	11.8	10.2
Operative EBIT	82.2	65.5
Operative EBIT, %	7.7	6.5
EBIT	68.5	54.4
EBIT, %	6.4	5.4
Capital employed*	603.4	596.7
Operative ROCE*, %	13.6	11.0
ROCE*, %	11.3	9.1
Capital expenditure excl. acquisitions	65.3	51.7
Capital expenditure	65.3	51.7
Cash flow after investing activities	52.5	46.9

*12-month rolling average

The segment's **revenue** increased by 6%. Revenue in local currencies, excluding acquisitions and divestments, increased by 9% due to higher sales prices. Currency exchange rates had an impact of -3%.

Within the segment, the revenue for the Oil & Gas business increased by 23% to EUR 241.9 million (197.0). In the water treatment business, organic growth continued as a combination of higher sales prices and lower sales volumes reflecting the focus on improving profitability.

In **EMEA**, revenue increased by 5% to EUR 534.3 million (511.1) driven by higher sales prices, especially in caustic soda, coagulants and polymers.

In the **Americas**, revenue increased by 9% to EUR 512.9 million (472.2) driven by the strong growth in the North American oil & gas business and higher sales prices in the water treatment business. Currencies had a negative impact on revenue.

In **APAC**, revenue decreased by 2% to EUR 25.4 million (25.8) due to negative currency impact while higher prices more than offset the decline in sales volumes as the focus on profitable customers continued.

Operative EBITDA increased by 15% as a result of higher sales prices offsetting increased variable costs despite headwind from currencies. EBITDA increased by 24% and the difference to operative **EBITDA** is explained by items affecting comparability.

PARENT COMPANY'S FINANCIAL PERFORMANCE

Kemira Oyj's revenue increased to EUR 1,489.7 million (1,397.2) in 2018. EBITDA was EUR 49.1 million (82.1). EBITDA decreased, mainly due to an increase in materials and services. The parent company's financing income and expenses were EUR 119.6 million (4.6). Financing income and expenses increased, mainly due to a higher dividend distribution from the Group's companies. Net profit totaled EUR 132.5 million (41.3). The total capital expenditure was EUR 26.2 million (27.1), excluding investments in subsidiaries.

KEMIRA OYJ'S SHARES AND SHAREHOLDERS

On December 31, 2018, Kemira Oyj's share capital amounted to EUR 221.8 million and the number of shares was 155,342,557. Each share entitles to one vote at the Annual General Meeting.

At the end of December, Kemira Oyj had 34,378 registered shareholders (35,571). Non-Finnish shareholders held 27.4% of the shares (25.8%) including nominee-registered holdings. Households owned 17.1% of the shares (17.9%). Kemira held 2,832,297 treasury shares (2,988,935) representing 1.8% (1.9%) of all company shares.

Kemira Oyj's share price decreased by 14% from the beginning of the year and closed at EUR 9.85 on the Nasdaq Helsinki at the end of December 2018 (11.50). Shares registered a high of EUR 12.03 and a low of EUR 9.34 in January-December 2018 and the average share price was EUR 11.00. The company's market capitalization, excluding treasury shares, was EUR 1,502 million at the end of December 2018 (1,752).

In January–December 2018, Kemira Oyj's share trading turnover on Nasdaq Helsinki was EUR 479 million (615). The average daily trading volume was 175,444 (215,814) shares. The total volume of Kemira Oyj's share trading in January–December 2018 was 68 million shares (85), 35% (36%) of which was executed on other trading platforms (BATS, Chi-X, Turquoise). Source: Nasdaq and Kemira.com.

Ownership December 31, 2018

Owners	Shares and votes
Corporations	23.1%
Financial and insurance corporations	4.3%
General government	24.3%
Households	17.1%
Non-profit institutions	3.8%
Non-Finnish shareholders incl. nominee registered	27.4%

SHAREHOLDING BY NUMBER OF SHARES HELD DECEMBER 31, 2018

Number of shares	Number of shareholders	% of shareholders	Shares total	% of shares and votes
1–100	8,802	25.6	518,102	0.3
101–500	14,075	40.9	3,873,976	2.5
501–1,000	5,383	15.7	4,178,372	2.7
1,001–5,000	5,124	14.9	10,756,232	6.9
5,001–10,000	549	1.6	4,004,999	2.6
10,001–50,000	337	1.0	6,778,024	4.4
50,001–100,000	41	0.1	3,064,082	2.0
100,001–500,000	47	0.1	9,742,569	6.3
500,001–1,000,000	4	0.0	2,509,365	1.6
1,000,001–	10	0.0	109,916,836	70.8
Total	**34,378**	**100.0**	**155,342,557**	**100.0**

LARGEST SHAREHOLDERS DECEMBER 31, 2018

	Shareholder	Number of shares	% of shares and votes
1	Oras Invest Ltd	28,278,217	18.2
2	Solidium Oy	25,896,087	16.7
3	Varma Mutual Pension Insurance Company	5,329,836	3.4
4	Ilmarinen Mutual Pension Insurance Company	3,100,000	2.1
5	Nordea funds	1,974,872	1.3
6	OP-Henkivakuutus Ltd.	1,403,278	0.9
7	Veritas Pension Insurance Company Ltd.	1,379,226	0.9
8	The State Pension Fund	700,000	0.5
9	Nordea Life Assurance Finland Ltd.	618,541	0.4
10	Laakkonen Mikko	600,000	0.4
11	Pohjola Fund Management	483,639	0.3
12	Paasikivi Pekka	434,000	0.3
13	Hulkko Juha Olavi	400,000	0.3
14	Valio Pension Fund	379,450	0.3
15	Sigrid Juselius Foundation	365,000	0.2
	Kemira Oyj	2,832,297	1.8
	Nominee registered and foreign shareholders	42,582,397	27.4
	Others, total	38,585,717	24.7
	Total	**155,342,557**	**100.0**

AGM DECISIONS

ANNUAL GENERAL MEETING

Kemira Oyj's Annual General Meeting was held on March 21, 2018 and confirmed the dividend of EUR 0.53. The dividend was paid out on April 5, 2018.

The AGM 2018 authorized the Board of Directors to decide on the repurchase of a maximum of 4,950,000 of the company's own shares ("Share Repurchase Authorization"). The Share Repurchase Authorization is valid until the end of the next Annual General Meeting. The Board had not exercised its authority by December 31, 2018.

The AGM 2018 also authorized the Board of Directors to decide to issue a maximum of 15,600,000 new shares and/or transfer a maximum of 7,800,000 of the company's own shares held by the company ("Share Issue Authorization"). The Share Issue Authorization is valid until May 31, 2019. The share issue authorization has been used and shares owned by the Group were conveyed to members of the Board and key employees in connection with the remuneration.

The AGM elected Deloitte Oy to serve as the company's auditor, with Jukka Vattulainen, Authorized Public Accountant, acting as the key audit partner.

CORPORATE GOVERNANCE AND GROUP STRUCTURE

Kemira Oyj's corporate governance is based on the Articles of Association, the Finnish Companies Act, and Nasdaq Helsinki's rules and regulations on listed companies. Furthermore, the company complies with the Finnish Corporate Governance Code. The company's corporate governance is presented as a separate statement on the company's website.

BOARD OF DIRECTORS

On March 21, 2018, the Annual General Meeting elected six members to the Board of Directors. The Annual General Meeting re-elected Wolfgang Büchele, Shirley Cunningham, Kaisa Hietala, Timo Lappalainen, Jari Paasikivi, and Kerttu Tuomas as members of the Board of Directors. Jari Paasikivi was re-elected as the Board's Chairman and Kerttu Tuomas was re-elected as the Vice Chairman. In 2018, Kemira's Board of Directors met 9 times with a 100% attendance rate.

Kemira Oyj's Board of Directors has appointed two committees: the Personnel and Remuneration Committee and the Audit Committee. The Personnel and Remuneration Committee is chaired by Jari Paasikivi and has Timo Lappalainen and Kerttu Tuomas as members. In 2018, the Personnel and Remuneration Committee met six times with a 100% attendance rate. The Audit Committee is chaired by Timo Lappalainen and has Kaisa Hietala and Jari Paasikivi as members. In 2018, the Audit Committee met six times with a 100% attendance rate.

STRUCTURE

On December 3, 2018, Kemira announced that it has completed the closing of the deal with AKD producer in China announced on September 29, 2017. Kemira formed a joint venture - Kemira TC Wanfeng Chemicals Yanzhou ("NewCo") - with Shandong Tiancheng Wanfeng Chemical Technology ("TC Wanfeng"). Kemira has 80% and TC Wanfeng 20% of NewCo.

SHORT-TERM RISKS AND UNCERTAINTIES

PRICE AND AVAILABILITY OF RAW MATERIALS AND COMMODITIES

Continuous improvement of profitability is a crucial part of Kemira's strategy. Significant and sudden increase in the cost of raw materials, commodity, or logistics could place Kemira's profitability targets at risk if Kemira is not be able to pass on such increase to product prices without delay. For instance, remarkable changes in oil and electricity prices could materially impact Kemira's profitability. Changes in the raw material supplier field, such as consolidation or decreasing capacity, may also increase raw material prices. Furthermore, significant demand changes in industries that are the main users of certain raw materials may lead to raw material price fluctuations. 2018 was a year of increasing raw material prices overall and put high pressure for Kemira to pass these changes on. Passing raw material cost increases onwards was a key focus area in 2018.

Poor availability of certain raw materials may affect Kemira's production and also profitability if Kemira fails to prepare for this by mapping out alternative suppliers or opportunities for process changes. Raw material and commodity risks can be effectively monitored and managed with Kemira's centralized Sourcing Unit. Risk management measures include, for instance, forward-looking forecasting of key raw materials and commodities, synchronization of raw material purchase agreements and sales agreements, captive manufacturing of some of the critical raw materials, strategic investment in energy-generating companies, and hedging a portion of the energy and electricity spend. In 2018, Kemira's joint venture with the fatty acid chloride producer Tiancheng is an example of helping to ensure the availability of key raw materials by backward integrating into the supply chain.

SUPPLIERS

The continuity of Kemira's business operations is dependent on accurate and good-quality supply of products and services. Kemira has currently in place numerous partnerships and other agreements with third-party product and service suppliers to secure its business continuity. Certain products used as raw materials are considered critical as the purchase can be made economically only from a sole or single source. In the event of a sudden and significant loss or interruption in such supply of raw material, Kemira's operations could be impacted, and this could have further effects on Kemira's ability to accomplish its profitability targets. Ineffective procurement planning, supply source selection, and contract administration, as well as inadequate supplier relationship management, create a risk of Kemira not being able to fulfill its promises to customers.

Kemira continuously aims to identify, analyze, and engage third-party suppliers in a way that ensures security of supply and competitive pricing of the end products and services. Collaborative relationships with key suppliers are being developed in order to uncover and realize new value and reduce risk. Supplier performance is also regularly monitored as a part of the supplier performance management process.

HAZARD RISKS

Kemira's production activities involve many hazard risks, such as fires and explosions, machinery breakdowns, natural catastrophes, exceptional weather conditions, environmental incidents, and the consequent possible resulting liabilities, as well as the employee health and safety risks. These risk events could derive from several factors, including also but not limited to unauthorized IT system access by malicious intruder causing possible damage to the systems and consequent financial losses. A systematic focus on achieving set targets, certified management systems, efficient hazard prevention programs, promotion of active safety culture, adequate maintenance, and competent personnel play a central role in managing these hazard risks. In addition, Kemira has several insurance programs that protect the company against financial impacts of hazard risks.

CHANGES IN CUSTOMER DEMAND

Significant unforeseen decline in the use of certain chemicals (e.g. chemicals for packaging and board production) or in the demand of customers' products and operations could have a negative impact on Kemira's business. Significant decline in certain raw material and utility prices (e.g. oil, gas, and metal) may shift customers' activities in areas, which can be exploited with fewer chemicals. Also, increased awareness of and concern about climate change and more sustainable products may change customer demands, for instance, in favor of water treatment technologies with lower chemical consumption. On the other hand, possible capacity expansions by customers could increase the chemical consumption and challenge Kemira's current production capacity.

In order to manage and mitigate this risk, Kemira systematically monitors leading and early warning indicators that focus on market development. Kemira has also continued to focus on the sustainability of its business and is further improving the coordination and cooperation between the Business Development, R&D, and Sales units in order to better understand the future needs and expectations of its customers. Timely capital investments as well as continuous discussions and follow-ups with customers ensure Kemira's ability to respond to changes in demand. Kemira's geographic and customer industry diversity also provides partial protection against the risk of changed customer demands.

ECONOMIC CONDITIONS AND GEOPOLITICAL CHANGES

Uncertainties in the global economic and geopolitical development are considered to include direct or indirect risks, such as a lower-growth period in the global GDP and possible unexpected trade-related political decisions, both of which could have unfavorable impacts on the demand for Kemira's products. Certain political actions or changes, especially in countries which are important to Kemira, could cause business interference or other adverse consequences. Current examples of these risks are related to Brexit and trade wars.

Weak economic development may result in customer closures or consolidations, resulting in a diminishing customer base. The liquidity of Kemira's customers could become weaker, resulting in increased credit losses for Kemira. Unfavorable market conditions may also increase the availability and price risk of certain raw materials.

Kemira's geographical and customer industry diversity provides only partial protection against these risks. Kemira continuously monitors geopolitical movements and changes and aims to adjust its business accordingly. For example, Brexit related risks are continuously monitored, and actions/preparations taken accordingly. Also trade war related risks are actively monitored and taken into account.

COMPETITION

Kemira operates in a rapidly changing and competitive business environment that represents a considerable risk to meeting its goals. New players seeking a foothold in Kemira's key business segments may use aggressive means as a competitive tool, which could affect Kemira's financial results. Major competitor or customer consolidations could change the market dynamics and possibly also change Kemira's market position.

Kemira is seeking growth in product categories that are less familiar and where new competitive situations prevail. In the long term, completely new types of technology may considerably change the current competitive situation. This risk is managed both at the Group and the segment levels through continuous monitoring of the competition. The company aims at responding to its competition with the active management of customer relationships and continuous development of its products and services to further differentiate itself from the competitors and be competitive.

ACQUISITIONS

Acquisitions are one potential way to reach corporate goals and strategies, in addition to organic growth. Consolidations are driven by chemical manufacturers' interests in realizing synergies and establishing footholds in new markets. However, the integration as such of acquired businesses, operations, and personnel also involves risks. If integration is unsuccessful, results may fall short of targets for such acquisitions.

Kemira has created M&A procedures and established Group level-dedicated resources to actively manage merger and acquisition activities and to support the execution of its business transactions. In addition, external advisory services are being used to screen potential mergers and acquisitions and to help execute transactions and post-merger integration.

INNOVATION AND R&D

Kemira's Research and Development is a critical enabler for organic growth and further differentiation. New product launches contribute to the efficiency and sustainability of Kemira's or its customers' processes, as well as to the improved profitability. Kemira's future market position and profitability depend on its ability to understand and meet current and future customer needs and market trends, and its ability to innovate new differentiated products and applications. Failure to innovate or focus on the new disruptive technologies and products, or to efficiently commercialize new products or service concepts may result in non-achievement of growth targets.

Innovation and R&D related risks are being managed through the efficient R&D portfolio management in close collaboration between R&D and the two business segments. Kemira has focused on close coordination and cooperation between Business Development, R&D, Sales and Marketing units in order to better understand the future needs and expectations of its customers. With continuous development of innovation processes Kemira aims towards more stringent project execution. Kemira maintains increased focus towards the development of more differentiated and sustainable products and processes and is also continuously monitoring sales of its new products and applications.

CHANGES IN LAWS AND REGULATIONS

Kemira's business is subject to various laws and regulations, which have relevance in the development and implementation of Kemira's strategy. Laws and regulations can generally be considered as an opportunity for Kemira as regulation drives for example the treatment of water. However, certain legislative initiatives supporting, for instance, the use of biodegradable raw materials or biological water treatment, limiting the use of aluminum, may also have a negative impact on Kemira's business. Significant changes, for instance, also in chemical, environmental or transportation laws and regulations may impact Kemira's profitability through the increase in production and transportation costs. At the same time, such changes may also create new business opportunities for Kemira.

Inclusion of new substances into the REACH authorization process may also bring further requirements to Kemira, where failure to obtain the relevant authorization could impact Kemira's business. In addition, the changes in import/export and customs-related regulation create needs for monitoring and mastering global trade compliance in order to ensure for instance compliant product importation.

Kemira continuously follows regulatory developments in order to maintain the awareness of proposed and upcoming changes of those laws and regulations which may have an impact, for instance, on its sales, production, and product development needs. Kemira has established an internal process to manage substances of potential concern and to create management plans for them. These plans cover, for example, the possibilities to replace certain substances if those would be subject to stricter regulation. Kemira has also increased the focus and resources in the management of global trade compliance.

Regulatory effects are systematically taken into consideration in strategic decision making. Kemira takes an active role in regulatory discussions whenever justified from the perspective of the industry or business.

TALENT MANAGEMENT

To secure competitiveness and growth, as well as to improve operational efficiency, it is essential to attract and retain personnel with the right skills and competences (e.g. R&D,

sales, customer service and marketing competence). Kemira is continuously identifying high potentials and key competencies for future needs. By systematic development and improvement of compensation schemes, learning programs, and career development programs, Kemira aims to ensure the continuity of skilled personnel also in the future.

A detailed account of the Kemira's risk management principles is available on the company's website at **www.kemira.com**. Financial risks are also described in the Notes to the Financial Statements.

EVENTS AFTER THE REVIEW PERIOD

KEMIRA FORMED A JOINT VENTURE IN SOUTH KOREA

On January 14, 2019 Kemira signed an agreement to establish a joint venture – Kemira Yongsan Chemicals Co., Ltd ("NewCo") in Ulsan, Republic of Korea, with Yongsan Chemicals, a privately-owned chemicals company in South Korea.

Forming a joint venture in South Korea is an important step in expanding Kemira's presence in Asia Pacific and driving profitable growth in the region. NewCo will produce dry polyacrylamide ("DPAM"), cationic monomer Q9 ("AMD") and other chemicals, which are used for retention and drainage in packaging and paper production, as well as in wastewater treatment and in sludge dewatering.

With NewCo's production site, Kemira will provide customers premium quality DPAMs supported by backward integrated high-quality AMDs. This ensures a sustainable and cost-effective manufacturing capability, effectively fulfilling customer needs and requirements. It is also an important addition to balance the increasing demand for Kemira's dry polymers globally.

Kemira will make a multi-million investment in the joint venture and will have a 35% minority share of the established company.

PROPOSALS OF THE NOMINATION BOARD TO THE ANNUAL GENERAL MEETING 2019

The Nomination Board proposes to the Annual General Meeting of Kemira Oyj that six members be elected to the Board of Directors and that the present members Wolfgang Büchele, Shirley Cunningham, Kaisa Hietala, Timo Lappalainen, Jari Paasikivi and Kerttu Tuomas be re-elected as members of the Board of Directors. In addition, the Nomination Board proposes that Jari Paasikivi be re-elected as the Chairman of the Board of Directors and Kerttu Tuomas be re-elected as the Vice Chairman. All the nominees have given their consent to the position.

The Nomination Board proposes to the Annual General Meeting that the annual fee for the Chairman is increased to EUR 92,000 from EUR 80,000 per year, for the Vice Chairman and the Chairman of the Audit Committee to EUR 55,000 from EUR 49,000 per year and for the other members to EUR 44,000 from EUR 39,000 per year. The annual fees have not been increased since 2015.

The Nomination Board proposes that the fee payable for each meeting of the Board of Directors and the Board Committees would remain unchanged. A fee payable for each meeting would thus be as follows: for the members residing in Finland EUR 600, for the members residing in rest of Europe EUR 1,200 and for the members residing outside Europe EUR 2,400. Travel expenses are proposed to be paid according to Kemira's travel policy.

In addition, the Nomination Board proposes to the Annual General Meeting that the annual fee be paid as a combination of the company's shares and cash in such a manner that 40% of the annual fee is paid with the company's shares owned by the company or, if this is not possible, shares purchased from the market, and 60% is paid in cash. The shares will be transferred to the members of the Board of Directors and, if necessary, acquired directly on behalf of the members of the Board of Directors within two weeks from the release of Kemira's interim report January 1–March 31, 2019. The meeting fees are proposed to be paid in cash.

The Nomination Board has consisted of the following representatives: Annika Paasikivi, CEO of Oras Invest Oy as the Chairman of the Nomination Board; Antti Mäkinen, CEO of Solidium Oy; Reima Rytsölä, Executive Vice-President, Varma Mutual Pension Insurance Company and Mikko Mursula, Chief Investment Officer, Ilmarinen Mutual Pension Insurance Company as members of the Nomination Board and Jari Paasikivi, Chairman of Kemira's Board of Directors as an expert member.

DIVIDEND AND DIVIDEND POLICY

On December 31, 2018, Kemira Oyj's distributable funds totaled EUR 835,333,094 of which net profit for the period was EUR 132,458,292. No material changes have taken place in the company's financial position after the balance sheet date.

Kemira Oyj's Board of Directors proposes to the Annual General Meeting to be held on March 21, 2019, that a dividend of EUR 0.53 per share totaling EUR 81 million shall be paid on the basis of the adopted balance sheet for the financial year ended December 31, 2018.

Kemira's dividend policy aims to pay a stable and competitive dividend.

IFRS 16 ACCOUNTING CHANGE

Kemira adopts IFRS 16 -standard on January 1, 2019. In the profit and loss statement, current operating lease expenses are replaced by the depreciation of the right-of-use asset and interest cost associated with lease liability. As a result, it is estimated that impact on net profit in P&L is immaterial. Kemira currently estimates that the adaptation of IFRS 16 -standard is expected to increase the total amount of balance sheet by approximately 5%, EBITDA margin by approximately 1 percentage point and gearing by approximately 10 percentage points. In 2019, the impact on operative EBITDA due to the adoption of IFRS 16 is estimated to be around EUR 30 million.

OUTLOOK FOR 2019

Kemira expects its operative EBITDA (2018: EUR 323.1 million) to increase from the prior year on a comparable basis excluding the impact of the IFRS 16 accounting change.

MID- TO LONG-TERM FINANCIAL TARGETS (UPDATED DUE TO THE ADOPTION OF IFRS 16 ACCOUNTING CHANGE)

Kemira aims at above-the-market revenue growth with operative EBITDA margin of 15-17%. The gearing target is below 75%. (Previously, before the adoption of IFRS 16 accounting change, the financial targets were: Kemira aims at above-the-market revenue growth with operative EBITDA margin of 14–16%. The gearing target is below 60%.)

Helsinki, February 7, 2019
Kemira Oyj
Board of Directors

All forward-looking statements in this review are based on the management's current expectations and beliefs about future events, and actual results may differ materially from the expectations and beliefs such statements contain.

Group key figures

Kemira provides certain financial performance measures (alternative performance measures), which are not defined by IFRS. Kemira believes that alternative performance measures followed by capital markets and Kemira management, such as organic growth*, EBITDA, operative EBITDA, cash flow after investing activities as well as gearing, provide useful information about Kemira's comparable business performance and financial position. Selected alternative performance measures are also used as performance criteria in remuneration.

Kemira's alternative performance measures should not be viewed in isolation to the equivalent IFRS measures and alternative performance measures should be read in conjunction with the most directly comparable IFRS measures. Definitions of the alternative performance measures can be found in the Definitions of the key figures in this financial statements, as well as at **www.kemira.com** > Investors > Financial information.

* Revenue growth in local currencies, excluding acquisitions and divestments.

	2018	2017	2016	2015	2014
Income statement and profitability					
Revenue, EUR million	2,593	2,486	2,363	2,373	2,137
Operative EBITDA, EUR million	323	311	303	287	253
Operative EBITDA, %	12.5	12.5	12.8	12.1	11.8
EBITDA, EUR million [1)]	315	282	284	264	253
EBITDA, %	12.1	11.4	12.0	11.1	11.8
Operative EBIT, EUR million	174	170	170	163	158
Operative EBIT, %	6.7	6.9	7.2	6.9	7.4
Operating profit (EBIT), EUR million [1)]	148	141	147	133	153
Operating profit (EBIT), %	5.7	5.7	6.2	5.6	7.1
Share of the results of associates, EUR million [1)]	0	0	0	0	0
Finance costs (net), EUR million	25	29	19	31	31
% of revenue	1.0	1.2	0.8	1.3	1.4
Interest cover, EUR million [1)]	12.6	9.8	14.9	8.6	8.2
Profit before tax, EUR million	123	113	128	102	122
% of revenue	4.8	4.5	5.4	4.3	5.7
Net profit for the period (attributable to equity owners of the parent), EUR million	89	79	92	71	90
Return on investment (ROI), %	7.0	6.5	7.2	6.6	8.2
Return of equity (ROE), %	7.6	6.7	7.8	6.1	7.9
Capital employed, EUR million	1,781	1,763	1,718	1,660	1,428
Operative return on capital employed (ROCE), %	9.8	9.7	9.9	9.8	11.1

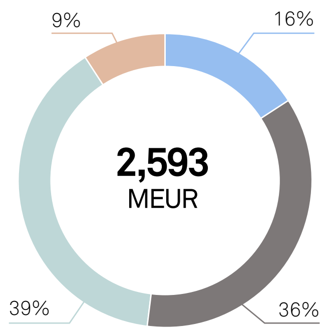
	2018	2017	2016	2015	2014
Return on capital employed (ROCE), %	8.3	8.0	8.6	8.0	10.7
Research and development expenses, EUR million	30	30	32	32	28
% of revenue	1.2	1.2	1.4	1.3	1.3
Cash flow					
Net cash generated from operating activities, EUR million	210	205	271	248	74
Proceeds from sale of subsidiaries and property, plant and equipment and intangible assets, EUR million	7	3	37	3	146
Capital expenditure, EUR million	194	190	211	305	145
% of revenue	7.5	7.6	8.9	12.9	6.8
Capital expenditure excl. acquisitions, EUR million	150	190	213	182	146
% of revenue	5.8	7.6	9.0	7.7	6.8
Cash flow after investing activities, EUR million	29	13	98	-54	75
Cash flow return on capital invested (CFROI), %	9.4	9.3	12.5	12.1	3.9
Balance sheet and solvency					
Non-current assets, EUR million	1,901	1,842	1,822	1,825	1,613
Shareholders' equity (Equity attributable to equity owners of the parent), EUR million	1,190	1,159	1,170	1,180	1,151
Total equity including non-controlling interests, EUR million	1,203	1,173	1,183	1,193	1,163
Total liabilities, EUR million	1,561	1,502	1,438	1,402	1,132
Total assets, EUR million	2,764	2,675	2,621	2,595	2,296

	2018	2017	2016	2015	2014
Net working capital	260	211	195	218	222
Interest-bearing net liabilities, EUR million	741	694	634	642	486
Equity ratio, %	44	44	45	46	51
Gearing, %	62	59	54	54	42
Interest-bearing net liabilities per EBITDA	2.4	2.5	2.2	2.4	1.9
Personnel					
Personnel at period-end	4,915	4,732	4,818	4,685	4,248
Personnel (average)	4,810	4,781	4,802	4,559	4,285
of whom in Finland	821	822	807	793	823
Exchange rates					
Key exchange rates at 31 Dec					
USD	1.145	1.199	1.054	1.089	1.214
CAD	1.561	1.504	1.419	1.512	1.406
SEK	10.255	9.844	9.553	9.190	9.393
CNY	7.875	7.804	7.320	7.061	7.536
BRL	4.444	3.973	3.431	4.312	3.221
Per share figures					
Earnings per share (EPS), basic and diluted, EUR [2]	0.58	0.52	0.60	0.47	0.59
Net cash generated from operating activities per share, EUR [2]	1.38	1.35	1.78	1.63	0.49
Dividend per share, EUR [2] [3]	0.53	0.53	0.53	0.53	0.53
Dividend payout ratio, % [2] [3]	90.7	102.7	88.0	113.5	89.6
Dividend yield, % [2] [3]	5.4	4.6	4.4	4.9	5.4
Equity per share, EUR [2]	7.80	7.61	7.68	7.76	7.57
Price per earnings per share (P/E ratio) [2]	16.85	22.29	20.14	23.29	16.72
Price per equity per share [2]	1.26	1.51	1.58	1.40	1.31
Price per cash flow from operations per share [2]	7.14	8.54	6.83	6.68	20.24
Dividend paid, EUR million [3]	80.8	80.7	80.8	80.7	80.6

	2018	2017	2016	2015	2014
Share price and trading					
Share price, high, EUR	12.03	12.44	12.55	12.27	12.27
Share price, low, EUR	9.34	10.33	8.92	9.14	9.11
Share price, average, EUR	11.00	11.47	10.96	10.86	10.87
Share price at 31 Dec, EUR	9.85	11.50	12.13	10.88	9.89
Number of shares traded (1,000)	43,837	54,169	64,827	74,877	75,018
% on number of shares	29	36	42	49	49
Market capitalization at 31 Dec, EUR million [2]	1,502.2	1,752.1	1,848.2	1,654.4	1,503.8
Number of shares and share capital					
Average number of shares, basic (1,000) [2]	152,484	152,359	152,314	152,059	152,048
Average number of shares, diluted (1,000) [2]	152,768	152,594	152,526	152,395	152,203
Number of shares at 31 Dec, basic (1,000) [2]	152,510	152,354	152,367	152,062	152,051
Number of shares at 31 Dec, diluted (1,000) [2]	152,927	152,512	152,619	152,544	152,373
Increase (+) / decrease (-) in number of shares outstanding (1,000)	156	-14	305	11	9
Share capital, EUR million	221.8	221.8	221.8	221.8	221.8

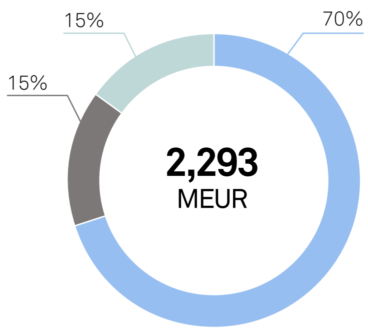
1) The share of the results of associates is presented after the finance costs, net.
2) Number of shares outstanding, excluding the number of treasury shares.
3) The dividend for 2018 is the Board of Directors' proposal to the Annual General Meeting.

REVENUE BY GEOGRAPHICAL AREAS



- Finland, domicile of the parent company
- Other Europe, Middle-East and Africa
- Americas
- Asia Pacific

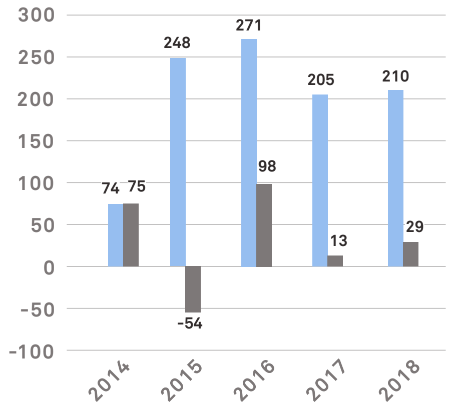
OPERATING EXPENSES



- Material and services
- Employee benefit expenses
- Other operating expenses

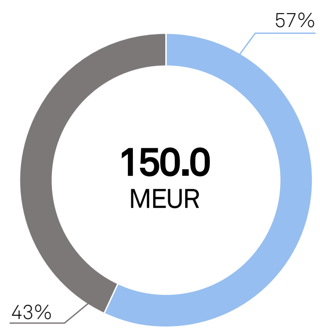
CASH FLOW

EUR million



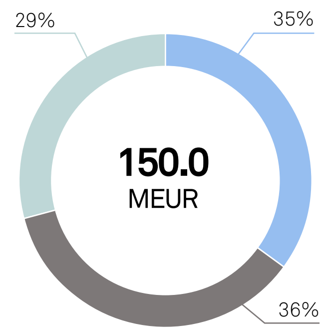
- Net cash generated from operating activities
- Cash flow after investing activities

CAPITAL EXPENDITURE BY SEGMENT EXCLUDING ACQUISITIONS



- Pulp & Paper
- Industry & Water

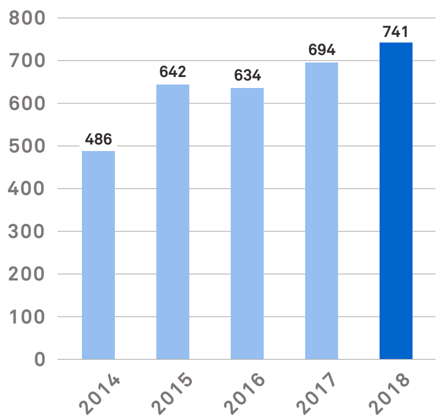
CAPITAL EXPENDITURE EXCLUDING ACQUISITIONS



- Maintenance
- Improvement
- Expansion

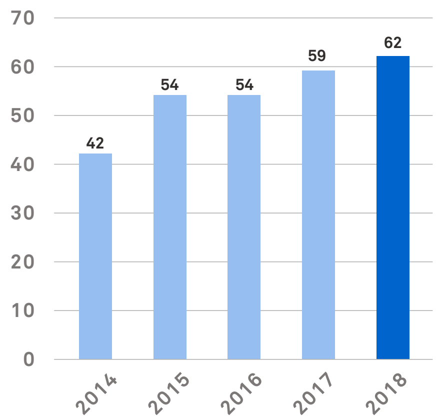
INTEREST-BEARING NET LIABILITIES

EUR million

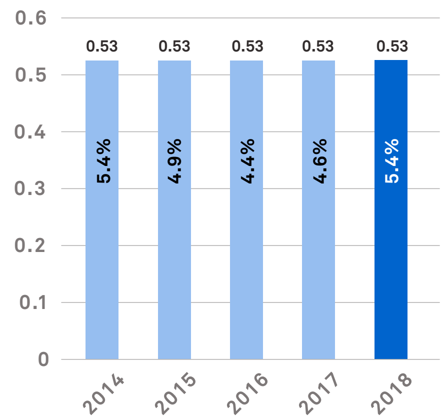


GEARING

%



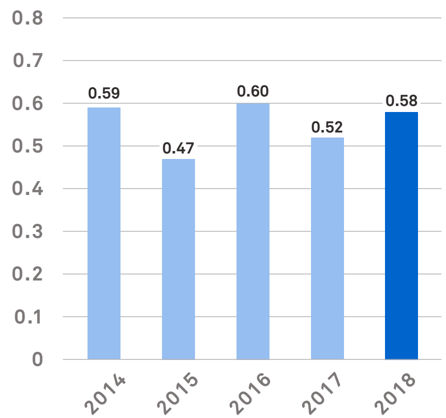
DIVIDEND PER SHARE AND, EUR DIVIDEND YIELD, % [1]



[1] The dividend for 2018 is the Board of Directors' proposal to the Annual General Meeting.

EARNINGS PER SHARE

EUR



Definition of key figures

FINANCIAL FIGURES

Operative EBITDA	=	Operating profit (EBIT) + depreciation and amortization + impairments +/- items affecting comparability
Items affecting comparability [1]	=	Restructuring and streamlining programs + transaction and integration expenses in acquisitions + divestment of businesses and other disposals + other items
Operative EBIT	=	Operating profit (EBIT) +/- items affecting comparability
Interest-bearing net liabilities	=	Interest-bearing liabilities - cash and cash equivalents
Equity ratio (%)	=	$100 \times \frac{\text{Total equity}}{\text{Total assets - prepayments received}}$
Gearing (%)	=	$100 \times \frac{\text{Interest-bearing net liabilities}}{\text{Total equity}}$
Interest cover	=	$\frac{\text{EBITDA}}{\text{Finance costs, net}}$
Return on investments (ROI) (%)	=	$100 \times \frac{\text{Profit before tax + interest expenses + other financial expenses}}{\text{Total assets - non-interest-bearing liabilities}^{2)}}$
Return on equity (ROE) (%)	=	$100 \times \frac{\text{Net profit attributable to equity owners of the parent}}{\text{Equity attributable to equity owners of the parent}^{2)}}$
Cash flow return on investment (CFROI) (%)	=	$100 \times \frac{\text{Net cash generated from operating activities}}{\text{Total assets - interest-free liabilities}^{2)}}$
Cash flow after investing activities	=	Net cash generated from operating activities + net cash used in investing activities
Operative return on capital employed (operative ROCE) (%)	=	$100 \times \frac{\text{Operative EBIT + share of profit or loss of associates}^{3)}}{\text{Capital employed 4)}}$
Return on capital employed (ROCE) (%)	=	$100 \times \frac{\text{Operating profit + share of the results of associates}^{3)}}{\text{Capital employed}^{4)}}$
Capital turnover	=	$\frac{\text{Revenue}}{\text{Capital employed}^{4)}}$
Interest-bearing net liabilities / EBITDA	=	$\frac{\text{Interest-bearing net liabilities}}{\text{Operating profit (EBIT) + depreciation and amortization + impairments}}$
Net financial cost (%)	=	$100 \times \frac{\text{Finance costs, net - dividend income +/- exchange rate differences}}{\text{Interest-bearing net liabilities}^{2)}}$
Net working capital	=	Inventories + trade receivables + other receivables, excluding derivatives, accrued interest income and other financing items - trade payables - other liabilities, excluding derivatives, accrued interest expenses and other financing items
Capital employed	=	Property, plant and equipment + intangible assets + net working capital + investments in associates

1) Financial performance measures which are not defined by IFRS may include items of income and expenses that effects the comparability of the financial reporting of Kemira Group. Restructuring and streamlining programs; transaction and integration expenses in acquisition; divestments of businesses and other disposals are considered the most common items affecting comparability.

2) Average

3) Operating profit (EBIT) and share of profit or loss of associates taken into account for a rolling 12-month period ending at the end of the review period.

4) 12-month rolling average

PER SHARE FIGURES

Earnings per share (EPS)	=		Net profit attributable to equity owners of the parent / Average number of shares
Net cash generated from operating activities per share	=		Net cash generated from operating activities / Average number of shares
Dividend per share	=		Dividend paid / Number of shares at 31 Dec
Dividend payout ratio (%)	=	100 x	Dividend per share / Earnings per share (EPS)
Dividend yield (%)	=	100 x	Dividend per share / Share price at 31 Dec
Equity per share	=		Equity attributable to equity owners of the parent at 31 Dec / Number of shares at 31 Dec
Share price, year average	=		Shares traded (EUR) / Shares traded (volume)
Price per earnings per share (P/E)	=		Share price at 31 Dec / Earnings per share (EPS)
Price per equity per share	=		Share price at 31 Dec / Equity per share attributable to equity owners of the parent
Price per net cash generated from operating activities per share	=		Share price at 31 Dec / Net cash generated from operating activities per share
Share turnover (%)	=	100 x	Number of shares traded in main stock exchange / Average number of shares

Consolidated Income Statement

		Year ended 31 December	
EUR million	**Note**	**2018**	**2017**
Revenue	2.1.	2,592.8	2,486.0
Other operating income	2.2.	14.8	6.8
Operating expenses	2.2.	-2,292.8	-2,210.4
EBITDA		314.8	282.4
Depreciation, amortization and impairments	2.4.	-166.6	-141.0
Operating profit (EBIT)		148.2	141.4
Finance income	2.5.	8.6	4.7
Finance expense	2.5.	-33.4	-30.4
Exchange differences	2.5.	-0.1	-3.2
Finance costs, net	2.5.	-25.0	-28.9
Share of the results of associates	6.2.	0.0	0.2
Profit before tax		123.3	112.6
Income taxes	2.6.	-28.1	-27.4
Net profit for the period		95.2	85.2
Net profit attributable to			
Equity owners of the parent		89.1	78.6
Non-controlling interests	6.2.	6.1	6.6
Net profit for the period		95.2	85.2
Earnings per share for net profit attributable to the equity owners of the parent company, EUR			
Basic and diluted	2.7.	0.58	0.52

The notes are an integral part of the Consolidated Financial Statements.

Consolidated Comprehensive Income

		Year ended 31 December	
EUR million	**Note**	**2018**	**2017**
Net profit for the period		95.2	85.2
Other comprehensive income			
Items that may be reclassified subsequently to profit or loss			
Other shares		-	24.0
Exchange differences in translating foreign operations		0.2	-46.4
Cash flow hedges		17.5	3.4
Items that will not be reclassified subsequently to profit or loss			
Other shares		-5.9	-
Remeasurements on defined benefit plans		10.1	9.6
Other comprehensive income for the period, net of tax	2.8.	21.8	-9.4
Total comprehensive income for the period		117.0	75.8
Total comprehensive income attributable to			
Equity owners of the parent		111.4	68.7
Non-controlling interests	6.2.	5.6	7.2
Total comprehensive income for the period		117.0	75.8

Items in the Consolidated Statement of Comprehensive Income are disclosed net of tax. The income tax relating to each component of other comprehensive income is disclosed in Note 2.8. Other comprehensive income.

The notes are an integral part of the Consolidated Financial Statements.

Consolidated Balance Sheet

		As at 31 December	
EUR million	**Note**	**2018**	**2017**
ASSETS			
Non-current assets			
Goodwill	3.1.	512.5	505.0
Other intangible assets	3.2.	128.6	100.5
Property, plant and equipment	3.3.	938.3	922.9
Investments in associates	6.2.	0.7	0.7
Other shares	3.4.	228.4	235.8
Deferred tax assets	4.4.	28.2	24.8
Other investments	5.4.	2.3	3.8
Receivables of defined benefit plans	4.5.	61.8	48.0
Total non-current assets		1,900.7	1,841.5
Current assets			
Inventories	4.1.	283.8	223.8
Interest-bearing receivables	4.2.	0.2	5.3
Trade receivables and other receivables	4.2.	420.2	418.8
Current income tax assets		13.9	18.7
Cash and cash equivalents	5.4.	144.9	166.1
Total current assets		863.1	832.8
Non-current assets classified as held-for-sale	6.2.	-	0.6
Total assets		2,763.8	2,674.9

The notes are an integral part of the Consolidated Financial Statements.

		As at 31 December	
EUR million	**Note**	**2018**	**2017**
EQUITY AND LIABILITIES			
Equity			
Equity attributable to equity owners of the parent			
Share capital		221.8	221.8
Share premium		257.9	257.9
Fair value and other reserves		110.2	98.7
Unrestricted equity reserve		196.3	196.3
Translation differences		-47.1	-47.7
Treasury shares		-19.1	-20.1
Retained earnings		469.6	452.1
Equity attributable to equity owners of the parent	5.2.	1,189.6	1,159.0
Non-controlling interests	6.2.	12.9	13.8
Total equity		1,202.5	1,172.8
Non-current liabilities			
Interest-bearing liabilities	5.3.	646.3	669.1
Other liabilities	5.4.	29.0	21.4
Deferred tax liabilities	4.4.	71.1	62.4
Liabilities of defined benefit plans	4.5.	81.2	82.3
Provisions	4.6.	29.6	27.2
Total non-current liabilities		857.3	862.5
Current liabilities			
Interest-bearing liabilities	5.3.	240.0	191.4
Trade payables and other liabilities	4.3.	439.1	422.8
Current income tax liabilities		15.6	14.2
Provisions	4.6.	9.2	11.3
Total current liabilities		703.9	639.7
Total liabilities		1,561.2	1,502.1
Total equity and liabilities		2,763.8	2,674.9

Consolidated Statement of Cash Flow

EUR million	Note	2018	2017
CASH FLOW FROM OPERATING ACTIVITIES			
Net profit for the period		95.2	85.2
Adjustments for			
Depreciation, amortization and impairments	2.4.	166.6	141.0
Income taxes	2.6.	28.1	27.4
Finance costs, net	2.5.	25.0	28.9
Share of the results of associates	6.2.	0.0	-0.2
Other non-cash income and expenses not involving cash flow		0.0	6.3
Operating profit before change in net working capital		314.8	288.7
Change in net working capital			
Increase (-) / decrease (+) in inventories		-64.7	-24.5
Increase (-) / decrease (+) in trade and other receivables		8.5	-47.2
Increase (+) / decrease (-) in trade payables and other liabilities		5.1	37.8
Change in net working capital		-51.1	-33.9
Cash flow from operations before financing items and taxes		263.7	254.8
Interest paid		-26.9	-25.8
Interest received		3.7	3.9
Other finance items, net		-6.8	-4.0
Dividends received		0.1	0.9
Income taxes paid		-23.6	-24.7
Net cash generated from operating activities		210.2	205.1

EUR million	Note	2018	2017
CASH FLOW FROM INVESTING ACTIVITIES			
Purchases of subsidiaries and asset acquisitions, net of cash acquired		-43.3	0.0
Purchases of other shares		0.0	-3.6
Purchases of property, plant and equipment and intangible assets		-150.4	-186.4
Change in loan receivables decrease (+) / increase (-)		5.2	-5.1
Proceeds from sale of subsidiaries, net of cash disposed		2.5	0.0
Proceeds from sale of associates and paid-in-capital from associates		4.3	0.0
Proceeds from sale of other shares and capital repayments		0.2	0.2
Proceeds from sale of property, plant, equipment and intangible assets		0.3	2.8
Net cash used in investing activities		-181.3	-192.2
CASH FLOW FROM FINANCING ACTIVITIES			
Proceeds from non-current interest-bearing liabilities (+)	5.1.	96.2	100.0
Repayment from non-current interest-bearing liabilities (-)	5.1.	-69.2	-62.1
Short-term financing, net increase (+) / decrease (-)	5.1.	10.3	36.3
Dividends paid		-87.3	-86.9
Net cash used in financing activities		-50.1	-12.7
Net decrease (-) / increase (+) in cash and cash equivalents		-21.1	0.3
Cash and cash equivalents at 31 Dec		144.9	166.1
Exchange gains (+) / losses (-) on cash and cash equivalents		-0.1	-7.5
Cash and cash equivalents at 1 Jan		166.1	173.4
Net decrease (-) / increase (+) in cash and cash equivalents		-21.1	0.3

The notes are an integral part of the Consolidated Financial Statements.

Consolidated Statement of Changes in Equity

	Equity attributable to owners of the parent									
EUR million	**Share capital**	**Share premium**	**Fair value and other reserves**	**Unrestricted equity reserve**	**Exchange differences**	**Treasury shares**	**Retained earnings**	**Total**	**Non-controlling interests**	**Total equity**
Equity at January 1, 2018	221.8	257.9	98.7	196.3	-47.7	-20.1	452.1	1,159.0	13.8	1,172.8
Change in accounting policy (IFRS 9 and IFRS 2) [1)]							-0.2	-0.2		-0.2
Restated equity at January 1, 2018	221.8	257.9	98.7	196.3	-47.7	-20.1	451.9	1,158.8	13.8	1,172.6
Net profit for the period							89.1	89.1	6.1	95.2
Other shares			-5.9					-5.9		-5.9
Exchange differences in translating foreign operations					0.6			0.6	-0.4	0.2
Cash flow hedges			17.5					17.5		17.5
Remeasurements on defined benefit plans							10.1	10.1		10.1
Total comprehensive income			11.5		0.6		99.3	111.4	5.6	117.0
Transactions with owners										
Dividends paid							-80.8	-80.8	-6.5	-87.3
Treasury shares issued to the target group of share-based incentive plan						1.0		1.0		1.0
Treasury shares issued to the Board of Directors						0.1		0.1		0.1
Treasury shares given back						0.0		0.0		0.0
Share-based payments							-0.8	-0.8		-0.8
Transactions with owners						1.1	-81.6	-80.5	-6.5	-87.0
Equity at December 31, 2018	221.8	257.9	110.2	196.3	-47.1	-19.1	469.6	1,189.6	12.9	1,202.5

1) Kemira has adopted IFRS 15 Revenue from Contracts with Customers and IFRS 9 Financial Instruments standards and the amendments to the IFRS 2 Share-based Payments standard. As a result of the changes in the standards, retained earnings in equity have been adjusted on January 1, 2018. IFRS 15 standard did not change Kemira's revenue recognition principles and thus did not result in any adjustments in retained earnings. IFRS 9 standard mainly impacts Kemira's valuation of loan receivables and credit losses recognition of trade receivables. Due to the change in the accounting policy, retained earnings have been adjusted for a total of EUR -1.0 million. When adopting the amendments to the IFRS 2 standard, Kemira has classified share-based payment arrangements as equity-settled in its entirety and liability related to the share-based payment arrangement has reclassified to retained earnings in equity. As a result of the change in the accounting policy, an adjustment of EUR 0.8 million has been recognized in the retained earnings. The total effect on equity from loan receivables, trade receivables and share-based payments is EUR -0.2 million including the deferred tax effect. Comparative financial periods were not restated.

The notes are an integral part of the Consolidated Financial Statements.

	Equity attributable to owners of the parent									
EUR million	**Share capital**	**Share premium**	**Fair value and other reserves**	**Unrestricted equity reserve**	**Exchange differences**	**Treasury shares**	**Retained earnings**	**Total**	**Non-controlling interests**	**Total equity**
Equity at January 1, 2017	221.8	257.9	72.2	196.3	-0.8	-20.0	442.6	1,170.0	12.9	1,182.9
Net profit for the period							78.6	78.6	6.6	85.2
Other shares			24.0					24.0		24.0
Exchange differences in translating foreign operations					-46.9			-46.9	0.5	-46.4
Cash flow hedges			3.4					3.4		3.4
Remeasurements on defined benefit plans							9.6	9.6		9.6
Total comprehensive income			27.4		-46.9		88.2	68.7	7.2	75.8
Transactions with owners										
Dividends paid							-80.7	-80.7	-6.2	-86.9
Treasury shares given back						-0.2		-0.2		-0.2
Treasury shares issued to the Board of Directors						0.1		0.1		0.1
Share-based payments							1.1	1.1		1.1
Transfers in equity			-0.9				0.9	0.0		0.0
Transactions with owners			-0.9			-0.1	-78.7	-79.7	-6.2	-85.9
Equity at December 31, 2017	221.8	257.9	98.7	196.3	-47.7	-20.1	452.1	1,159.0	13.8	1,172.8

1. THE GROUP'S ACCOUNTING POLICIES FOR THE CONSOLIDATED FINANCIAL STATEMENTS

GROUP PROFILE

Kemira is a global chemicals company serving customers in water-intensive industries. The company provides expertise in application and chemicals that improve efficiency for customers in the use of water, energy and raw materials. Kemira's two segments Pulp & Paper and Industry & Water focus on customers in pulp & paper, oil & gas, mining and water treatment respectively.

The Group's parent company is Kemira Oyj, domiciled in Helsinki, Finland, and its registered address is Energiakatu 4, FI-00180 Helsinki, Finland. The parent company is listed on Nasdaq Helsinki. A copy of the Consolidated Financial Statements is available at **www.kemira.com**.

The Board of Directors of Kemira Oyj has approved the Financial Statements for publication at its meeting on February 7, 2019. Under the Finnish Limited Liability Companies Act, the shareholders may accept or reject the Financial Statements at the General Meeting of Shareholders held after their publication. The meeting also has the power make a decision to amend the Financial Statements.

BASIS OF PREPARATION FOR THE CONSOLIDATED FINANCIAL STATEMENTS

The Group has prepared its Consolidated Financial Statements in accordance with IAS and IFRS (International Financial Reporting Standards) and the related SIC and IFRIC interpretations, issued by the IASB (International Accounting Standards Board) and the Finnish Accounting Act and the statutes under it. The International Financial Reporting Standards refer to the endorsed standards and their interpretations under the European Union Regulation No. 1606/2002, which concerns the adoption of the International Financial Reporting Standards that are applicable within the Community. The Notes to the Consolidated Financial Statements also comply with the requirements of the Finnish accounting and corporate legislation, which supplement the IFRS regulations.

The Consolidated Financial Statements are presented in EUR million and have been prepared based on the historical cost except for the items measured at fair value through other comprehensive income including unlisted PVO/TVO shares, financial assets and liabilities at fair value through profit or loss, and share-based payments on the grant date.

The preparation of the Consolidated Financial Statements in conformity with the IFRS requires the use of certain critical accounting estimates. It also requires management to exercise its judgment in the process of applying the Group's accounting policies. The areas that need a higher degree of judgment, and that are significant to the Consolidated Financial Statements are described below in the section “Critical accounting estimates and judgments”.

All the figures in the Consolidated Financial Statements have been individually rounded and consequently the sum of individual figures may deviate from the sum figure presented.

CONSOLIDATION PRINCIPLES OF SUBSIDIARIES AND NON-CONTROLLING INTERESTS

The Consolidated Financial Statements include the parent company and its subsidiaries. Subsidiaries are all entities that the Group has control over (voting rights generally being over 50%). The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity, and when it has the ability to affect those returns through its power over the entity.

Subsidiaries are fully consolidated from the date on which the control is transferred to the Group. They are de-consolidated from the date on which this control ceases.

All intra-group transactions are eliminated. Intra-group shareholdings are eliminated by using the acquisition method. The consideration transferred for acquisition of a subsidiary is defined as an aggregate of the fair values of the assets transferred, the liabilities assumed and the equity interest issued by the Group. The consideration transferred may include the fair value of any asset or liability resulting from the contingent consideration arrangement. Acquisition-related costs are expensed as incurred. Identifiable assets acquired, and liabilities and contingent liabilities that are assumed in a business combination are measured at their fair values on the acquisition date. On an acquisition-by-acquisition basis, the Group recognizes any non-controlling interest in the acquiree either at fair value or at the non-controlling interest's proportionate share of the acquiree's net assets.

The amount that exceeds the aggregate of consideration transferred, the amount of any non-controlling interest in the acquiree and the acquisition-date fair value of any previous equity interest in the acquiree over the fair value of the Group's share of the net assets acquired is recognized as goodwill in the balance sheet. If this is less than the fair value of the net assets of the subsidiary acquired by bargain purchase, the difference is recognized directly in the income statement.

Net profit or loss for the financial year and other comprehensive income attributable to the equity holders of the parent and non-controlling interests are presented in the income statement and in the statement of comprehensive income. The portion of equity attributable to non-controlling interests is stated as an individual item separately from the equity to the equity holders of the parent. Total comprehensive income separately shows the total amounts attributable to the equity holders of the parent and to non-controlling interests. The Group recognizes negative non-controlling interests, unless the non-controlling interest does not have a binding obligation to cover the losses up to the amount of their investment.

If the parent company's ownership interest in the subsidiary is reduced but the control is retained, then the transactions are treated as equity transactions. When the Group ceases to have control or significant influence, any retained interest in the entity is remeasured at its fair value, and the difference is recognized in profit or loss.

ASSOCIATES

Associated companies are companies over which the Group exercises significant influence (voting rights generally being 20–50%), but not control. Holdings in associated companies are consolidated using the equity method. If the Group's share of the associate's losses exceeds the carrying amount of the investment, the exceeding losses will not be consolidated unless the Group has a commitment to fulfill the obligations on behalf of the associate. The Group's share of the associated companies' net profit for the financial year is stated as a separate item in the consolidated income statement after operating profit, in proportion to the Group's holdings. The Group's share of the movements of its associates in other comprehensive income is recognized in the Group's other comprehensive income.

FOREIGN CURRENCY TRANSLATION

Items included in the financial statements of each of the Group's entities are measured by using the currency of the primary economic environment in which the entity operates (the functional currency). The Consolidated Financial Statements are presented in EUR, which is the Group's presentation currency and the parent company's functional and presentation currency.

In the Consolidated Financial Statements, the income statements of foreign subsidiaries are translated into EUR using the financial year's average foreign currency exchange rates, and the balance sheets are translated using the exchange rates quoted on the balance sheet date. Translating the net profit for the period using different exchange rates in the income statement and in the balance sheet causes a translation difference recognized in equity in the balance sheet. The change in this translation difference is presented under other comprehensive income. Goodwill and fair value adjustments to the carrying amounts of the assets and liabilities that arise from the acquisition of a foreign entity are accounted for as part of the assets and liabilities of the foreign entity, and are translated into EUR at the rate quoted on the balance sheet date.

Translation differences in the loans granted to some foreign subsidiaries are treated as an increase or decrease in other comprehensive income. When the Group ceases to have control over a subsidiary, the accumulated translation difference is transferred into the income statement as part of the gain or loss on the sale.

In their day-to-day accounting, the Group companies translate foreign currency transactions into their functional currency at the exchange rates quoted on the transaction date. In the Financial Statements, foreign currency denominated receivables and liabilities are measured at the exchange rates quoted on the balance sheet date. Non-monetary items are measured using the rates quoted on the transaction date. Any foreign exchange gains and losses related to business operations are treated as adjustments to sales and purchases. Exchange rate differences associated with financing transactions and the hedging of the Group's overall foreign currency position are stated in foreign exchange gains or losses under finance income and expenses.

NEW, AMENDED IFRS STANDARDS AND IFRIC INTERPRETATIONS

IFRS 9 Financial Instruments

As of January 1, 2018, Kemira adopted the IFRS 9 Financial Instruments standard. IFRS 9 superseded IAS 39 Financial Instruments: Recognition and Measurement. IFRS 9 introduced new requirements for the classification and measurement of financial assets and introduced a new impairment model for financial assets, which is based on expected credit losses. Recognition and measurement of financial liabilities mainly continue to be carried out on the same basis as currently adopted under IAS 39 requirements. The new general hedge accounting requirements retain the three types of hedge accounting mechanisms currently available in IAS 39. However, greater flexibility has been introduced to the types of transactions eligible for hedge accounting, specifically broadening the types of instruments that qualify as hedging instruments and the types of risk components of non-financial items that are eligible for hedge accounting.

IFRS 9 changed Kemira's current credit loss recognition accounting policies relating to trade receivables. Kemira adopted a simplified credit loss model for trade receivables in which the amount of credit losses is estimated by using the impairment model based on expected credit losses. In the new expected credit loss model, the credit losses vary according to aging categories of trade receivables and geographical areas: EMEA, the Americas and APAC. In addition, the credit loss provision for trade receivables continues to be recognized based on individual risk assessments. In accordance with the new credit loss model, an adjustment of EUR -0.4 million (including deferred tax effect of EUR 0.1 million) was recognized in the retained earnings as of January 1, 2018, and subsequent adjustments are recognized in profit or loss. The comparative periods were not restated.

IFRS 9 impacts the valuation of loan receivables due to the expected credit losses reduce the amount of loan receivables. Expected credit loss of EUR -1.0 million (including deferred tax effect of EUR 0.3 million) arising from the measurement of loan receivables was recognized in transition into equity in retained earnings as of January 1, 2018. Subsequent adjustments are recognized in profit or loss. The comparative periods were not restated.

As of January 1, 2018, non-listed PVO/TVO shares are classified as fair value through other comprehensive income in the fair value reserve. Under IAS 39 PVO/TVO shares are classified in available-for-sale financial assets. In IFRS 9 fair value changes, including gains and losses on sale, are recognized in other comprehensive income in equity and the dividends are recognized in profit or loss. The comparative periods were not restated, except the classification change.

In the previous financial years, the Group has applied cash flow hedge accounting for electricity derivatives in accordance with IAS 39. IFRS 9 provides an opportunity to apply hedge accounting separately for electricity price components of the system price and area price quoted by the Nordic Electricity Exchange.

Under IAS 39 the fair value changes of cash flow hedge accounted electricity derivatives were recognized in other comprehensive income and potential ineffectiveness in profit or loss. Kemira adopted IFRS 9 hedge accounting for electricity derivatives from January 1, 2018. When effective part of the fair value changes related to cash flow hedge accounted electricity derivatives is recognized in other comprehensive income, ineffectiveness does not generally arise because the components of the electricity price risk are separately hedged. The comparative periods were not restated.

The total effect on equity from trade receivables and loan receivables were EUR 1.0 million.

On the date of initial application, January 1, 2018, financial assets and liabilities were classified under IFRS 9 as follows:

FINANCIAL ASSETS EUR million	Classification IAS 39	 IFRS 9	Book value 1.1.2018 IAS 39	 IFRS 9	 Adjustment
Financial assets at fair value through profit and loss not qualifying for hedge accounting	Financial assets at fair value through profit and loss	Fair value through profit and loss	3.9	3.9	-
Derivatives qualifying for hedge accounting	Financial assets at fair value through other comprehensive income	Fair value through other comprehensive income	9.7	9.7	-
Other non-current assets	Loans and receivables	Amortized cost	3.8	3.2	0.6
Current interest-bearing loan receivables	Loans and receivables	Amortized cost	5.3	4.9	0.4
Trade receivables	Loans and receivables	Amortized cost	315.2	314.8	0.4
Cash and cash equivalents	Loans and receivables	Amortized cost	166.1	166.1	-
Other shares	Available-for-sale financial assets	Fair value through other comprehensive income	235.8	235.8	-
FINANCIAL LIABILITIES					
Financial liabilities at fair value through profit and loss not qualifying for hedge accounting	Financial liabilities at fair value through profit or loss	Fair value through profit and loss	3.7	3.7	-
Derivatives qualifying for hedge accounting	Financial liabilities at fair value through profit or loss	Fair value through other comprehensive income	1.7	1.7	-
Interest-bearing liabilities	Other financial liabilities	Amortized cost	860.5	860.5	-
Non-interest-bearing liabilities	Other financial liabilities	Amortized cost	52.4	52.4	-
Trade payables	Other financial liabilities	Amortized cost	187.2	187.2	-

IFRS 15 Revenue from Contracts with Customers

As of January 1, 2018, Kemira adopted IFRS 15 Revenue from Contracts with Customers. IFRS 15 establishes a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers. IFRS 15 supersedes the revenue recognition guidance including IAS 18 Revenue, IAS 11 Construction Contracts and the related interpretations. The core principle of IFRS 15 is that an entity should recognize revenue to depict the transfer of promised goods or services to customers an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. Under IFRS 15, an entity recognizes revenue when (or as) a performance obligation is satisfied, i.e. when 'control' of the good or service underlying the particular performance obligation is transferred to the customer.

Kemira provides delivery and handling services together with the sale of the chemical products to the customers. The delivery and handling services are recognized at the same time with revenue of products and are not treated as a separate performance obligation in accordance with IFRS 15 standard. Recognition of revenue on both the sale of products and delivery and handling services in the same reporting period is consistent with the accounting policy under IAS 18.

Discounts provided to customers are not a significant component of the sales price in Kemira's sales contracts. Implementing IFRS 15 does not change the accounting treatment.

The Group adopted IFRS 15 using a full retrospective method as of January 1, 2018. The comparative periods are not restated as the revenue recognition criteria remains unchanged.

Amendment to IFRS 2 Classification and Measurement of Share-based Payment Transactions

As of January 1, 2018, Kemira adopted the amendments to IFRS 2 Share-based Payments Transactions. The amendments clarify the measurement basis for cash-settled share-based payments and the accounting for modifications that change an award from cash-settled to equity-settled. Where a tax law or regulation requires the employer to withhold a specified number of equity instruments equal to the monetary value of the employee's tax obligation to meet the employee's tax liability which is then remitted to the tax authority, such an arrangement should be classified as equity-settled in its entirety, if this would have been the classification of the arrangement without the net settlement feature.

The application of the amendments had an impact on the Group's consolidated financial statements as the Group has a share-based payment arrangement in which the Group settles the employee's withholding tax with the tax authorities. Before adoption of the amendment this feature was accounted for as a cash-settled arrangement. On the adoption of this amendment, the Group will derecognize the liability related to this arrangement and reclassify the amount to equity. As a result of the change in the accounting policy, an adjustment of EUR 0.8 million has been recognized in retained earnings.

IFRS 16 Leases

IFRS 16 Leases standard provides a comprehensive model for the identification of lease arrangements and their treatment in the financial statements of both lessees and lessors. It supersedes the current IAS 17 Leases and the related interpretations. IFRS 16 distinguishes leases and service contracts on the basis of whether an identified asset is controlled by a customer. Distinction of operating leases (off balance sheet) and finance leases (on balance sheet) are removed for lessee accounting and is replaced by a model where a right-of-use asset and a corresponding liability have to be recognized for all leases by lessees (i.e. all on balance sheet) except for short-term leases and leases of low value assets. In contrast to lessee accounting, IFRS 16 substantially carries forward the lessor accounting requirements in IAS 17, and continues to require a lessor to classify a lease either as an operating lease or a finance lease. In addition, IFRS 16 requires extensive disclosures.

Kemira adopts IFRS 16 -standard on January 1, 2019. All the relevant Group functions have been involved in the implementation project and the project has covered e.g. the accounting process and control changes, collecting and maintaining lease data as well as training the organization. As a part of the project, Kemira has implemented a lease administration tool for contract administration and lease calculation purposes and the tool has deployed at the beginning of 2019.

IFRS 16 standard affects the accounting treatment for Kemira Group's operating leases. On December 31, 2018, the Group's off-balance sheet operating lease commitments were EUR 205 million. Some of the commitments are covered by the short-term and low-value leases exemptions and some commitments relate to arrangements that will not qualify as leases under IFRS 16 -standard. In P&L, current operating lease expenses are replaced by the depreciation of the right-of-use asset and interest cost associated with lease liability. As a result, it is estimated that impact on net profit in P&L is immaterial.

Kemira adopts IFRS 16 -standard using modified retrospective transition approach. At the date of transition on January 1, 2019, Kemira estimates that implementation of IFRS 16 -standard will increases the right-of-use assets in the balance sheet of approximately EUR 120 million, lease liabilities of approximately EUR 125–130 million, and decrease the retained earnings of approximately EUR 5 million including the deferred tax effect. The information from the prior years is not restated. Kemira will publish figures in accordance with the new IFRS 16 standard in the Interim financial statements Q1/2019.

Kemira currently estimates that the adaptation of IFRS 16 -standard is expected to increase the total amount of balance sheet by approximately 5%, EBITDA margin by approximately 1 percentage point and gearing by approximately 10 percentage points. In 2019, the impact on operative EBITDA due to the adoption of IFRS 16 is estimated to be around EUR 30 million. The adaption of IFRS 16 standard will also affect to certain key figures and cash flow.

IFRIC 23 Uncertainty over Income Tax Treatments

The IFRIC 23 interpretation addresses the determination of taxable profit (tax loss), tax bases, unused tax losses, unused tax credits and tax rates when there is uncertainty over income tax treatments under IAS 12.

The interpretation requires to assess, whether it is probable that the tax authority will or will not accept the uncertain income tax treatment used (or proposed to be used) by an entity in its income tax filings and to determine whether the uncertain tax positions should be considered separately or collectively. If it is probable that the tax authorities will not accept the uncertain tax treatment, the entity should reflect the effect of the uncertainty in determining its accounting tax position. The entity should assume that the tax authorities will examine the uncertain tax treatments and have full knowledge of all related information. The impact of the uncertainty should be measured using either the most likely amount or the expected value method, depending on which method better predicts the resolution of the uncertainty. The judgments and estimates made are reassessed whenever circumstances have changed or there is new information that affects the judgements.

The Group has a process in which it aims to identify and assess the potential uncertainties over the income tax treatment. The Group applies the interpretation first time for the accounting period starting on January 1, 2019. The impact on adaption of the interpretation has estimated not to be material on the Consolidated Financial Statements.

Critical accounting estimates and judgments

Estimates and judgments are continuously evaluated, and are based on previous experience and other factors, such as expectations of future events that are expected to be reasonable under the circumstances.

The Group makes estimates and assumptions concerning the future. The resulting accounting estimates will, by definition, seldom equal the related actual results. The items of the financial statements that carry a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are addressed below.

Critical accounting estimates and judgments	Note
Estimated impairment of goodwill	3.1. Goodwill
Estimated fair value of shares in the PVO Group	3.4. Other shares
Deferred taxes and uncertain tax positions	2.6. Income taxes and 4.4. Deferred tax liabilities and assets
Defined benefit pension plans	4.5. Defined benefit pension plans and employee benefits
Provisions	4.6. Provisions

2. FINANCIAL PERFORMANCE

2.1. SEGMENT INFORMATION

Kemira's organization consists of two segments: Pulp & Paper and Industry & Water.

Pulp & Paper

Pulp & Paper has expertise in applying chemicals and supporting pulp & paper producers in innovating and constantly improving their operational efficiency. The segment develops and sells products to fulfill customer needs, ensuring the leading portfolio of products and services for paper wet-end, focusing on packaging and board, as well as tissue.

Industry & Water

Industry & Water supports municipalities and water intensive industries in the efficient and sustainable utilization of resources. In water treatment, the segment helps in the optimization of every stage of the water cycle. In the oil and gas industry, the segment helps to improve yield from existing reserves and reduce water and energy use.

ALTERNATIVE PERFORMANCE MEASURES

Kemira provides certain financial performance measures (alternative performance measures), which are not defined by IFRS. Kemira believes that alternative performance measures followed by capital markets and Kemira management, such as organic growth*, EBITDA, operative EBITDA, cash flow after investing activities as well as gearing, provide useful information about Kemira's comparable business performance and financial position. Selected alternative performance measures are also used as performance criteria in remuneration.

Kemira's alternative performance measures should not be viewed in isolation to the equivalent IFRS measures and alternative performance measures should be read in conjunction with the most directly comparable IFRS measures. Definitions of the key figures is disclosed in the section on the Definitions of key figures.

* Revenue growth in local currencies, excluding acquisitions and divestments.

INCOME STATEMENT ITEMS

2018, EUR million	Pulp & Paper	Industry & Water	Group
Revenue [1]	1,520.2	1,072.6	2,592.8
EBITDA [2]	187.8	127.0	314.8
Depreciation, amortization and impairments	-108.0	-58.6	-166.6
Operating profit (EBIT) [2]	79.8	68.5	148.2
Finance costs, net			-25.0
Share of the results of associates			0.0
Profit before tax			123.3
Income taxes			-28.1
Net profit for the period			95.2

1) Revenue consists mainly of sales of products to external customers, and there are no intersegment sales.
2) Includes items affecting comparability.

ITEMS AFFECTING COMPARABILITY IN EBITDA AND EBIT

2018, EUR million	Pulp & Paper	Industry & Water	Group
Operative EBITDA	191.7	131.5	323.1
Restructuring and streamlining programs			-8.9
Transaction and integration expenses in acquisition			2.8
Divestment of businesses and other disposals			5.7
Other items			-7.9
Total items affecting comparability	-3.9	-4.4	-8.3
EBITDA	187.8	127.0	314.8
Operative EBIT	91.6	82.2	173.8
Items affecting comparability in EBITDA	-3.9	-4.4	-8.3
Items affecting comparability in depreciation, amortization and impairments	-7.9	-9.3	-17.3
Operating profit (EBIT)	79.8	68.5	148.2

Quarterly information on items affecting comparability is disclosed in the section on Reconciliation of IFRS figures.

BALANCE SHEET ITEMS

2018, EUR million	Pulp & Paper	Industry & Water	Group
Segment assets	1,472.3	779.3	2,251.6
Reconciliation to total assets as reported in the Group balance sheet:			
Other shares			228.4
Deferred income tax assets			28.2
Other investments			2.3
Defined benefit pension receivables			61.8
Other assets			46.6
Cash and cash equivalents			144.9
Total assets			2,763.8
Segment liabilities	238.0	173.2	411.1
Reconciliation to total liabilities as reported in the Group balance sheet:			
Interest-bearing non-current financial liabilities			646.3
Interest-bearing current financial liabilities			240.0
Other liabilities			263.8
Total liabilities			1,561.2

OTHER ITEMS

2018, EUR million	Pulp & Paper	Industry & Water	Group
Capital employed by segments at 31 Dec	1,234.3	606.1	1,840.5
Capital employed by segments, 12-month rolling average	1,177.6	603.4	1,781.4
Operative ROCE, %	7.8	13.6	9.8
Capital expenditure	128.4	65.3	193.7

INCOME STATEMENT ITEMS

2017, EUR million	Pulp & Paper	Industry & Water	Group
Revenue [1]	1,476.9	1,009.1	2,486.0
EBITDA [2]	179.9	102.5	282.4
Depreciation, amortization and impairments	-92.9	-48.1	-141.0
Operating profit (EBIT) [2]	86.9	54.4	141.4
Finance costs, net			-28.9
Share of the results of associates			0.2
Profit before tax			112.6
Income taxes			-27.4
Net profit for the period			85.2

1) Revenue consists mainly of sales of products to external customers, and there are no intersegment sales.
2) Includes items affecting comparability.

ITEMS AFFECTING COMPARABILITY IN EBITDA AND EBIT

2017, EUR million	Pulp & Paper	Industry & Water	Group
Operative EBITDA	197.7	113.6	311.3
Restructuring and streamlining programs			-13.1
Transaction and integration expenses in acquisition			0.3
Divestment of businesses and other disposals			-1.9
Other items			-14.4
Total items affecting comparability	-17.9	-11.0	-28.9
EBITDA	179.9	102.5	282.4
Operative EBIT	104.8	65.5	170.3
Items affecting comparability in EBITDA	-17.9	-11.0	-28.9
Items affecting comparability in depreciation, amortization and impairments	0.0	0.0	0.0
Operating profit (EBIT)	86.9	54.4	141.4

Quarterly information on items affecting comparability is disclosed in the section on Reconciliation of IFRS figures.

BALANCE SHEET ITEMS

2017, EUR million	Pulp & Paper	Industry & Water	Group
Segment assets	1,380.8	769.6	2,150.3
Reconciliation to total assets as reported in the Group balance sheet:			
Other shares			235.8
Deferred income tax assets			24.8
Other investments			3.8
Defined benefit pension receivables			48.0
Other assets			45.4
Cash and cash equivalents			166.1
Non-current assets classified as held-for-sale			0.6
Total assets			2,674.9
Segment liabilities	223.0	187.8	410.8
Reconciliation to total liabilities as reported in the Group balance sheet:			
Interest-bearing non-current financial liabilities			669.1
Interest-bearing current financial liabilities			191.4
Other liabilities			230.8
Total liabilities			1,502.1

OTHER ITEMS

2017, EUR million	Pulp & Paper	Industry & Water	Group
Capital employed by segments at 31 Dec	1,157.7	581.8	1,739.5
Capital employed by segments, 12-month rolling average	1,165.2	596.7	1,763.2
Operative ROCE, %	9.0	11.0	9.7
Capital expenditure	138.3	51.7	190.1

Information about geographical areas

REVENUE BY GEOGRAPHICAL AREA BASED ON CUSTOMER LOCATION

EUR million	2018	2017
Finland, domicile of the parent company	417.2	354.4
Other Europe, Middle East and Africa	942.3	932.9
Americas	1,001.6	979.0
Asia Pacific	231.7	219.7
Total	2,592.8	2,486.0

NON-CURRENT ASSETS BY GEOGRAPHICAL AREA

EUR million	2018	2017
Finland, domicile of the parent company	725.8	731.0
Other Europe, Middle East and Africa	467.1	476.4
Americas	426.5	433.3
Asia Pacific	191.4	128.0
Total	1,810.7	1,768.7

Information about major customers

The Group has several significant customers. At least 10% of the Group's revenue was not accumulated from any single external customer in 2018 or 2017.

The Group's accounting policies

Segment reporting

Segment information is presented in a manner consistent with the Group's internal organizational and reporting structure. Kemira's management evaluates the segments performance based on operative EBITDA and operating EBIT, among other factors. Assets and liabilities dedicated to a particular segment's operations are included in that segment's total assets and liabilities. Segment assets include property, plant and equipment, intangible assets, investments in associates, inventories, and current non-interest-bearing receivables. Segment liabilities include current non-interest-bearing liabilities. Geographically, Kemira's operations are divided into three business regions: Europe, the Middle East and Africa (EMEA), the Americas and Asia Pacific (APAC).

Revenue recognition
IFRS 15 standard establishes a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers. The core principle is that an entity should recognize revenue to depict the transfer of promised goods or services to customers an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. Kemira recognizes revenue when (or as) a performance obligation is satisfied, i.e. when 'control' of the good or service underlying the particular performance obligation is transferred to the customer.

Kemira's revenue consists mainly of contract types that include sales of chemical products and services which are related to sales of these products. Revenue recognition occurs at the point when the control of the products is transferred to the customer. In Kemira's sales agreements, control is transferred to the customer based on delivery terms and the revenue is recognized at a point in time.

Kemira provides delivery and handling services together with the sale of the chemical products to the customers. The delivery and handling services are recognized at the same time with revenue of products and are not treated as a separate performance obligation. Kemira recognizes the sale of products and the delivery and handling of services for the same reporting period.

Discounts provided to customers are not a significant component of the sales price in Kemira's sales contracts.

2.2. OTHER OPERATING INCOME AND EXPENSES

OTHER OPERATING INCOME

EUR million	2018	2017
Gains on sale of non-current assets	6.4	1.8
Rental income	1.2	1.1
Services	3.2	3.7
Other income from operations	4.1	0.3
Total	14.8	6.8

OPERATING EXPENSES

EUR million	2018	2017
Change in inventories of finished goods (inventory increase + / decrease -)	48.8	-4.5
Own work capitalized [1]	-1.8	-3.2
Total	47.0	-7.7
Materials and services		
Materials and supplies		
Purchases during the financial year	1,542.6	1,502.1
Change in inventories of materials and supplies (inventory increase + / decrease -)	11.2	11.5
External services	45.6	40.2
Total	1,599.4	1,553.8
Employee benefit expenses	351.5	364.0
Other operating expenses		
Rents	49.3	51.1
Other expenses [2]	245.6	249.3
Total	294.9	300.4
Total operating expenses	2,292.8	2,210.4

1) Own work capitalized mainly comprises wages, salaries and other personnel expenses, and changes in inventories relating to self-constructed property, plant and equipment for own use.

2) In 2018, other operating expenses included research and development expenses of EUR 30.2 million (30.3) including government grants received. Government grants received for R&D were EUR 0.3 million (0.5). The extent of the grants received reduces the research and development expenses.

EMPLOYEE BENEFIT EXPENSES

EUR million	Note	2018	2017
Wages and salaries			
Wages		274.6	279.5
Emoluments of Kemira Oyj's CEO and the Board of Directors	6.1.	1.4	1.3
Share-based payments to others	2.3.	2.2	3.5
Total		278.2	284.3
Indirect employee benefit expenses			
Expenses for defined benefit plans	4.5.	2.7	3.5
Pension expenses for defined contribution plans		20.6	20.5
Other employee benefit costs		49.9	55.7
Total		73.2	79.7
Total employee benefit expenses		351.5	364.0

NUMBER OF PERSONNEL

	2018	2017
Average number of personnel by geographical area		
Europe, Middle East and Africa	2,590	2,611
Americas	1,546	1,532
Asia Pacific	674	638
Total	4,810	4,781
Personnel in Finland, average	821	822
Personnel outside Finland, average	3,989	3,959
Total	4,810	4,781
Number of personnel at 31 Dec	4,915	4,732

DELOITTE NETWORK'S FEES AND SERVICES

EUR million	2018	2017
Audit fees	1.5	1.7
Tax services	0.4	0.2
Other services	0.7	0.7
Total	2.6	2.6

The Group's accounting policies

Government grants

Government grants for investments are recognized as a deduction from the carrying amount of PP&E. The grants are recognized in the income statement as smaller depreciations over the asset's useful life. Government grants for research activities are recognized as a deduction from expenses and certain other grants are recognized in other income from operations.

Research and developments costs

Research and development costs are recognized as an expense as incurred. Development costs are capitalized as intangible assets when it can be shown that a development project will generate a probable future economic benefit, and the costs attributable to the development project can reliably be measured. Capitalized development costs include material, labor and testing costs, and any capitalized borrowing costs that are directly attributable to bringing the asset ready for its intended use. Other development costs that do not meet these criteria are recognized as an expense as incurred. Development costs previously recognized as an expense are not recognized as an asset in the subsequent periods.

2.3. SHARE-BASED PAYMENTS

Share incentive plans 2015–2018

Kemira's share incentive plan comprises four performance periods for the calendar years 2015, 2016, 2017 and 2018. The Board of Directors of Kemira will decide on the plan's performance criteria and on the required performance levels for each criterion at the beginning of each performance period.

The rewards for the performance periods will be paid partly in Kemira's shares and partly in cash. The cash proportion is intended to cover taxes and tax-related costs arising from the reward to the participant. As a rule, no reward will be paid if a participant's employment or service ends before the reward payment.

The shares paid as a reward may not be transferred during the restriction period, which will end two years after the end of the performance period. If a participant's employment or service ends during the restriction period, as a rule, a participant must gratuitously return the shares given as a reward.

	Share incentive plan 2015	Share incentive plan 2016 [2]	Share incentive plan 2017	Share incentive plan 2018
Performance period (calendar year)	2015	2016	2017	2018
Lock-up period of shares	2 years	2 years	2 years	2 years
Issue year of shares	2016	-	2018	2019
Number of transferred shares at December 31, 2018	268.851 [1]	-	145.928	- [4]
Number of participants at December 31, 2018	81	-	76	78
Performance criteria	Group's revenue and operative EBITDA margin	Group's revenue and operative EBITDA margin	Intrinsic value [3]	Intrinsic value [3]

1) At the end of the financial year ending 31 December, 2017, the commitment period for the performance period 2015 ended and the 268,851 shares paid on the basis of the share-based incentive scheme were released in January 2018.

2) The set objectives were not achieved, therefore the share-based incentives were not paid on the basis of the share-based incentive plan.

3) The amount of the reward is based on the Intrinsic value which is calculated using Kemira's operative EBITDA and Interest-bearing net liabilities.

4) In accordance with the terms and conditions of the share-based incentive plan, approximately 140,000 shares will be transferred to the participants during 2019.

CHANGES IN THE NUMBER OF SHARES IN THE SHARE INCENTIVE PLANS

	Share incentive plan 2015	Share incentive plan 2016	Share incentive plan 2017	Share incentive plan 2018
January 1, 2017	292,572	-	-	-
The shares issued to participants	-	-	-	-
The shares returned by participants	-23,721	-	-	-
December 31, 2017	268,851	-	-	-
January 1, 2018	268,851	-	-	-
The shares issued to participants	-	-	149,328	-
The shares returned by participants	-	-	-3,400	-
December 31, 2018	268,851	-	145,928	-

THE EFFECT OF SHARE-BASED PAYMENTS ON OPERATING PROFIT

EUR million	2018	2017
Rewards provided in shares	1.1	1.4
Rewards provided in cash	1.2	2.1
Total	2.2	3.5

Long-term share incentive plan 2019-2023

On December 21, 2018, the Board of Directors of Kemira Oyj decided to establish a long-term share incentive plan directed to a group of key employees. The long-term share incentive plan includes altogether two one-year performance periods for the years 2019 and 2020 and, three three-year performance periods for the years 2019–2021, 2020–2022 and 2021–2023.

Participation in the long-term share incentive plan’s performance periods for 2019 & 2019–2021 is directed to approximately 90 key employees. The rewards to be paid in these performance periods, if the criteria are fulfilled, will amount up to a maximum of 643,500 Kemira Oyj shares. In addition, a cash proportion intended to cover the taxes and tax-related costs arising from the reward is included.

The Group's accounting policies

Share-based payments
The Group has equity-settled share-based incentive plans under which the Group receives services from persons as consideration for the share-based rewards. The potential rewards for these services are provided to the person partly in shares and partly in cash.

The Group's share incentive plan includes persons in several different countries where the Group is obliged under local tax laws or regulations to pay the tax liability to the tax authorities on behalf of a person in cash.

The share-based incentive plans have been entirely classified as an equity-settled transaction. The rewards granted on the basis of a share-based arrangement are recognized as a personnel expenses in the income statement and in the equity. The expense is recognized over the vesting period, which is the period over which the specified vesting conditions are to be satisfied.

Share-based compensation expenses are determined on the grant date based on the Group's estimate of the number of shares that are expected to vest at the end of the vesting period. Based on the vesting conditions, the Group revises its estimates of the number of shares expected to vest based on the balance sheet date. It recognizes the potential impact of the revision on original estimates in the income statement as a personnel expense, with the corresponding adjustment made to equity at fair value.

2.4. DEPRECIATION, AMORTIZATION AND IMPAIRMENTS

EUR million	2018	2017
Amortization of intangible assets and depreciation of property, plant and equipment		
Other intangible assets [1]	28.0	26.2
Buildings and constructions	17.7	17.5
Machinery and equipment	97.3	91.2
Other tangible assets	6.4	6.2
Total	149.3	141.0
Impairments of intangible assets and property, plant and equipment [2]		
Other intangible assets	0.1	0.0
Buildings and constructions	2.3	0.0
Machinery and equipment	14.9	0.0
Total	17.3	0.0
Total depreciation, amortization and impairments	166.6	141.0

1) Amortization of intangible assets related to business acquisitions amounted to EUR 15.9 million (16.7) during the financial year 2018.
2) Impairments are related to the closure of plants.

Goodwill impairment tests are disclosed in Note 3.1. Goodwill.

The Group's accounting policies

Depreciation/amortization

Depreciation/amortization is calculated on a straight-line basis over the estimated asset's useful life. Land is not depreciated. The most commonly applied depreciation/amortization periods according to the Group's accounting policies are presented in the following table.

Depreciation of property, plant and equipment and amortization of intangible assets in years	
Buildings and constructions	20–40
Machinery and equipment	3–15
Development costs	a maximum of 8 years
Customer relationships	5–7
Technologies	5–10
Non-compete agreements	3–5
Other intangible assets	5–10

Depreciation/amortization of an asset begins when it is available for use and it ceases at the moment when the asset is classified under IFRS 5 as held for sale, or is included in the disposal group.

2.5. FINANCE INCOME AND EXPENSES

EUR million	2018	2017
Finance income		
Dividend income	0.1	0.8
Interest income		
Interest income from loans and receivables	3.4	1.1
Interest income from financial assets at fair value through profit or loss	1.6	2.5
Other finance income [1)]	3.6	0.3
Total	8.6	4.7

EUR million	2018	2017
Finance expense		
Interest expenses		
Interest expenses from other liabilities	-21.6	-20.3
Interest expenses from financial liabilities at fair value through profit or loss	-6.9	-6.1
Other finance expenses	-4.9	-4.0
Total	-33.4	-30.4
Exchange differences		
Exchange differences from financial assets and liabilities at fair value through profit or loss	12.1	9.0
Exchange differences, other	-12.2	-12.2
Total	-0.1	-3.2
Total finance income and expenses	-25.0	-28.9
Net finance expenses as a percentage of revenue	1.0	1.2
Net interest as a percentage of revenue	0.9	1.0
Change in Consolidated Statement of Comprehensive Income from hedge accounting instruments		
Cash flow hedge accounting: amount recognized in the Consolidated Statement of Comprehensive Income	17.5	3.4
Total	17.5	3.4
Exchange differences		
Realized	-2.1	6.3
Unrealized	1.9	-9.4
Total	-0.1	-3.2

1) In 2018, other finance income included gains from the sale of shares in energy production companies.

2.6. INCOME TAXES

EUR million	2018	2017
Current taxes	-29.9	-21.6
Taxes for prior years	-0.1	0.1
Change in deferred taxes	1.9	-5.9
Total	-28.1	-27.4

RECONCILIATION BETWEEN TAX EXPENSE AND TAX CALCULATED AT DOMESTIC TAX RATE

EUR million	2018	2017
Profit before tax	123.3	112.6
Tax at parent's tax rate 20%	-24.7	-22.5
Foreign subsidiaries' different tax rate	-1.6	-2.0
Non-deductible expenses and tax-exempt profits	-0.1	-3.2
Share of profit or loss of associates	0.0	0.0
Tax losses	-4.4	-5.9
Tax for prior years	-0.1	0.1
Effect of change in tax rates	0.1	8.4
Changes in deferred taxes related to prior years	2.6	-2.3
Total taxes	-28.1	-27.4

The effective tax rate of the Group is 22.8% (24.3%).

The subsidiaries have EUR 131.5 million (125.5) tax losses, of which no deferred tax benefits have been recognized. The subsidiaries' tax losses are incurred in different currencies and borne mainly in Brazil and China.

According to the U.S. tax reform signed on December 22, 2017, the federal corporate income tax rate reduced from 35% to 21%, which was taken into account when calculating deferred tax assets and liabilities in 2017. The effect of tax rate change in deferred taxes in 2017 was EUR 8.4 million positive.

The Group has subsidiaries in approximately 40 countries and, hence, has continuously tax audits on-going of which results have not yet been finalized. The potential uncertainties over the income tax treatments of the periods open for tax re-assessment and uncertainties potentially identified in the on-going tax audits are required to be assessed by the management as the outcomes are unknown. The prior tax audits have not resulted in material adjustments to the Group's income taxes.

The Group has a tax dispute pending in the Supreme Administrative Court in Finland related to the tax deductibility of certain interest costs. In case of an unfavourable decision, there will be no impact to the Group's financial position. As a result of a favourable decision, the Group's income tax credits and tax losses carried forward would increase materially.

The Group's accounting policies

Income taxes

The Group's tax expense for the period comprises current tax, adjustments prior tax periods and deferred tax. Tax is recognized in the income statement, except where it relates to items recognized in other comprehensive income or directly in equity. In this case, the tax is also recognized in other comprehensive income or directly in equity.

The current income tax charge is calculated based on tax laws enacted or substantively enacted at the balance sheet date in the countries where the company and its subsidiaries operate and generate taxable income.

Critical accounting estimates and judgments

Deferred taxes and uncertain tax positions

The management evaluates regularly the positions taken in the tax returns to identify situations in which the applicable tax regulation may be subject to interpretation. The management evaluates also other potential uncertainties related to the tax positions identified in the tax audits or tax disputes. The potential provisions are recorded based on the management's estimations of the final taxes to be paid to the tax authorities.

2.7. EARNINGS PER SHARE

	2018	2017
Earnings per share, basic		
Net profit attributable to equity owners of the parent, EUR million	89.1	78.6
Weighted average number of shares [1]	152,483,502	152,359,250
Basic earnings per share, EUR	0.58	0.52
Earnings per share, diluted		
Net profit attributable to equity owners of the parent, EUR million	89.1	78.6
Weighted average number of shares [1]	152,483,502	152,359,250
Adjustments:		
Average number of treasury shares possibly to be issued on the basis of the share-based payments	284,449	234,668
Weighted average number of shares for diluted earnings per share	152,767,951	152,593,919
Diluted earnings per share, EUR	0.58	0.52

1) Weighted average number of shares outstanding, excluding the number of treasury shares.

The Group's accounting policies

Earnings per share

The basic earnings per share are calculated by dividing the profit attributable to the equity owners of the parent company by the weighted average number of shares in issue during the period excluding shares purchased by Kemira Oyj and held as treasury shares. The diluted earnings per share are calculated by adjusting the weighted average number of ordinary shares with the diluted effect of all the potential dilutive shares, such as shares from share-based payments.

2.8. OTHER COMPREHENSIVE INCOME

OTHER COMPREHENSIVE INCOME

EUR million	2018	2017
Items that may be reclassified subsequently to profit or loss		
Other shares	-	30
Exchange differences on translating foreign operations	1.2	-58.1
Cash flow hedges	21.9	4.3
Items that will not be reclassified subsequently to profit or loss		
Other shares	-7.5	-
Remeasurements on defined benefit plans	13.3	12.6
Other comprehensive income for the period before taxes	28.9	-11.2
The tax relating to components of other comprehensive income	-7.1	1.8
Other comprehensive income for the period, net of tax	21.8	-9.4

THE TAX RELATING TO COMPONENTS OF OTHER COMPREHENSIVE INCOME

	2018			2017		
EUR million	Before tax	Tax charge (-)/ credit (+)	After tax	Before tax	Tax charge (-)/ credit (+)	After tax
Items that may be reclassified subsequently to profit or loss						
Other shares	-	-	-	30.0	-6.0	24.0
Exchange differences on translating foreign operations	1.2	-1.0	0.2	-58.1	11.7	-46.4
Cash flow hedges	21.9	-4.4	17.5	4.3	-0.9	3.4
Items that will not be reclassified subsequently to profit or loss						
Other shares	-7.5	1.5	-5.9	-	-	-
Remeasurements on defined benefit plans	13.3	-3.2	10.1	12.6	-3.0	9.6
Total other comprehensive income	28.9	-7.1	21.8	-11.2	1.8	-9.4

3. CAPITAL EXPENDITURES AND ACQUISITIONS

3.1. GOODWILL

EUR million	Note	2018	2017
Net book value at 1 Jan		505.0	522.4
Acquisition of subsidiaries and business acquisitions [1]	3.5.	2.2	0.0
Decreases and other changes		0.0	0.0
Exchange differences		5.4	-17.4
Net book value at 31 Dec		512.5	505.0

1) In 2018, goodwill has increased due to the business acquisition in China.

Impairment testing of goodwill

The Group carries out its annual impairment testing of goodwill on September 30. Impairment testing of goodwill is also carried out when changes in circumstances indicate that the carrying amount exceeds its recoverable amount. The recoverable amounts of cash-generating units have been determined based on value in use calculations. The key assumptions are the long-term growth rate and discount rate. In 2018, impairment testing did not indicate any impairment (2017: no impairment).

Goodwill is allocated to two individual cash-generating units that are the Group's reportable segments. The reportable segment represents the lowest level within the Group at which the goodwill is monitored for internal management purposes. The Group's two reportable segments are Pulp & Paper and Industry & Water. A summary of the tested net book values and goodwill to the Group's reportable segments is presented in the following table.

	2018		2017	
EUR million	Net book value	of which goodwill	Net book value	of which goodwill
Pulp & Paper	1,234	355	1,158	350
Industry & Water	606	157	581	155
Total	1,841	513	1,739	505

Key assumptions for impairment testing of goodwill

Long-term growth rate assumption

A long-term growth rate assumption is used for the impairment testing of goodwill. The assumptions of the long-term growth rate were used based on financial forecasts prepared by the Group and approved by the management covering a five-year horizon. Forecasts for cash flow growth reflect the management's perception of developments in sales and cost items during the forecast period. The expected growth used to extrapolate cash flows subsequent to the five-year forecast period was assumed to be zero.

Discount rate

The discount rates applied were based on the Group's adjusted pre-tax weighted average cost of capital (WACC). The risk-adjusted WACC rate was defined separately for each cash-generating unit. The discount rates used in performing the impairment tests of the Group's reportable segments are presented in the following table.

%	2018	2017
Pulp & Paper [2]	5.2	6.6
Industry & Water [2]	5.1	6.6

2) Changes in the discount rate are mainly due to changes in the appropriate risk factors (beta).

Sensitivity analysis

Sensitivity analyses were made under the assumption that there would be a decline in the growth rate of cash flows during and after the forecast period. A general increase in interest rates has also been taken into consideration as well as a decrease in profitability. A decrease of 10% in the estimated cash flow, or an increase of 2 percentage points in the discount rate, would not result in impairment losses to be recorded in either of the reportable segments.

The Group's accounting policies

Goodwill

Goodwill arises from business combinations. Goodwill represents the excess of the consideration transferred, the amount of any non-controlling interest in the acquiree and the acquisition-date fair value of any previous equity interest in the acquiree over the fair value of the identifiable net assets acquired. Goodwill is measured at cost less the accumulated impairment losses. Goodwill is tested for impairment annually and whenever there is any indication that an asset may be impaired. For this purpose, goodwill is allocated to cash-generating units.

Impairment testing

On each balance sheet date, the Group's assets are assessed to determine whether there is any indication of an asset's impairment. If any indication of impairment exists, the recoverable amount of the asset or the cash-generating unit is calculated on the basis of the value in use or the net selling price. Annual impairment tests cover goodwill and intangible assets not yet ready for use.

A cash-generating unit has been defined as an operating segment. The operating segments are Pulp & Paper and Industry & Water. Two or more operating segments are not combined into one reportable segment. Goodwill impairment is tested by comparing the reportable segment's (Pulp & Paper and Industry & Water) recoverable amount with its carrying amount. The Group does not have intangible assets with indefinite useful lives other than goodwill. All goodwill has been allocated to the reportable segments.

The recoverable amount of a reportable segment is defined as its value in use, which consists of the discounted future cash flows to the unit. Estimates of future cash flows are based on the continuing use of an asset and on the latest five-year forecasts by the management. The annual growth rate used to extrapolate cash flows subsequent to the forecast period is assumed to be zero. Cash flow estimates do not include the effects of improved asset performance, investments or future reorganizations.

An impairment loss is recognized whenever the carrying amount of an asset or a cash-generating unit exceeds its recoverable amount. An impairment loss is recognized in the income statement.

If there has been a positive change in the estimates used to determine an asset's recoverable amount since the last impairment loss was recognized, an impairment loss recognized for previous years is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined if no impairment loss had been recognized for the previous years. An impairment loss for goodwill is never reversed.

Critical accounting estimates and judgments

Estimated impairment of goodwill

The impairment tests of goodwill and other assets include determining future cash flows which, with regard to the most significant assumptions, are based on margin levels, discount rates and the projected period. Major adverse developments in cash flows and interest rates may necessitate the recognition of an impairment loss.

3.2. OTHER INTANGIBLE ASSETS

2018, EUR million	Other intangible assets	Prepayments	Total
Acquisition cost at 1 Jan	267.3	10.5	277.8
Additions	19.7	-7.4	12.4
Purchases of subsidiaries and business acquisitions [1]	41.2	2.5	43.7
Decreases and other changes	0.0	0.0	0.0
Exchange rate differences	0.5	0.0	0.4
Acquisition cost at 31 Dec	328.6	5.6	334.2
Accumulated amortization at 1 Jan	-177.2		-177.2
Accumulated amortization relating to decreases and transfers	0.0		0.0
Amortization during the financial year	-28.0		-28.0
Impairments	-0.1		-0.1
Exchange rate differences	-0.3		-0.3
Accumulated amortization at 31 Dec	-205.6		-205.6
Net book value at 31 Dec	123.0	5.6	128.6

2017, EUR million			
Acquisition cost at 1 Jan	269.4	4.2	273.6
Additions	7.5	6.3	13.8
Decreases and other changes	-4.7		-4.7
Exchange rate differences	-4.9		-4.9
Acquisition cost at 31 Dec	267.3	10.5	277.8
Accumulated amortization at 1 Jan	-157.7		-157.7
Accumulated amortization relating to decreases and transfers	4.7		4.7
Amortization during the financial year	-26.0		-26.0
Exchange rate differences	1.8		1.8
Accumulated amortization at 31 Dec	-177.2		-177.2
Net book value at 31 Dec	90.0	10.5	100.5

1) Includes patents and a non-compete agreement that were allocated to intangible assets from the business acquisition in China.

The Group holds assigned emissions allowances under the EU Emissions Trading System at the Helsingborg site in Sweden and at the Bradford site in the UK. At the Group level, the allowances showed a surplus of 51,801 tons of carbon dioxide in 2018 (a net surplus of 122,464 tons).

The Group's accounting policies

Other intangible assets

Other intangible assets include software and software licenses, for instance, patents, technologies, non-compete agreements and customer relationships acquired in business combinations. Intangible assets are measured at cost less accumulated amortization and any impairment losses. The Group has no intangible assets that have an indefinite useful life other than goodwill.

Emissions allowances

Emission allowances are accounted for as intangible assets measured at cost. Emission allowances received free of charge are measured at their nominal value (zero). A provision for the fulfillment of the obligation to return allowances is recognized if the free-of-charge allowances are not sufficient to cover actual emissions. The Group's consolidated balance sheet shows no items related to emissions allowances when the volume of actual emissions is lower than that of the free-of-charge emissions allowances and the Group has not bought allowances on the market.

3.3. PROPERTY, PLANT AND EQUIPMENT

2018, EUR million	Land	Buildings and constructions	Machinery and equipment	Other property, plant and equipment	Prepayments and assets under construction [2]	Total
Acquisition cost at 1 Jan	51.0	499.0	1,551.7	66.3	89.4	2,257.5
Additions	0.1	2.5	127.0	4.6	1.4	135.6
Acquisitions of subsidiaries and business acquisitions [1]		5.5	6.2		11.7	23.3
Decreases and other changes		-6.4	-44.6	-0.6	0.0	-51.5
Disposed subsidiaries	-0.1	-1.7	-0.4			-2.2
Reclassifications	0.0	0.0	0.0	0.0	0.0	0.0
Exchange rate differences	-0.5	-4.5	-2.7	0.1	-0.6	-8.3
Acquisition cost at 31 Dec	50.4	494.4	1,637.3	70.4	101.9	2,354.5
Accumulated depreciation at 1 Jan	-9.8	-267.8	-1,022.9	-34.1		-1,334.7
Accumulated depreciation related to decreases and transfers		8.3	45.1	0.6		54.0
Depreciation during the financial year		-17.7	-97.3	-6.4		-121.3
Impairments		-2.3	-14.0	-0.9		-17.2
Exchange rate differences		3.1	0.0	-0.1		3.0
Accumulated depreciation at 31 Dec	-9.8	-276.4	-1,089.1	-40.8		-1,416.3
Net book value at 31 Dec [3]	40.6	218.0	548.2	29.6	101.9	938.3

1) Includes items that were transferred to property, plant and equipment from the business acquisition in China.
2) Prepayment and non-current assets under construction are mainly comprised of plant investments.
3) Property, plant and equipment also includes the assets leased under finance leases. These are disclosed in Note 5.3. Interest-bearing liabilities.

2017, EUR million	Land	Buildings and constructions	Machinery and equipment	Other property, plant and equipment	Prepayments and assets under construction 2)	Total
Acquisition cost at 1 Jan	53.1	480.9	1,452.7	61.7	154.4	2,202.8
Additions	0.2	40.7	183.2	9.6	-61.0	172.7
Decreases and other changes	-0.7	-1.1	-10.5			-12.3
Reclassifications		0.2	-0.2			0.0
Exchange rate differences	-1.7	-21.6	-73.5	-4.9	-4.0	-105.6
Acquisition cost at 31 Dec	51.0	499.0	1,551.7	66.3	89.4	2,257.5
Accumulated depreciation at 1 Jan	-9.9	-261.2	-985.4	-30.7		-1,287.2
Accumulated depreciation related to decreases and transfers		0.7	10.4			11.1
Depreciation during the financial year		-17.1	-88.5	-6.0		-111.5
Impairments	0.0					0.0
Exchange rate differences		9.7	40.7	2.5		53.0
Accumulated depreciation at 31 Dec	-9.8	-267.8	-1,022.9	-34.1		-1,334.7
Net book value at 31 Dec 3)	41.1	231.2	528.8	32.2	89.4	922.9

2) Prepayment and non-current assets under construction are mainly comprised of plant investments.
3) Property, plant and equipment also includes the assets leased under finance leases. These are disclosed in Note 5.3. Interest-bearing liabilities.

The Group's accounting policies

Property, plant and equipment

Property, plant and equipment are measured at cost less accumulated depreciation and any impairment losses. The residual values and useful lives of the assets are reviewed at least at the end of each financial year. Gains and losses on the sale of non-current assets are included in other operating income and expenses. Borrowing costs directly attributable to the acquisition or construction of a qualifying asset are capitalized as part of the cost of the asset in question when it is probable that they will generate future economic benefits and the costs can be reliably measured. The costs of major inspections or the overhaul of an asset performed at regular intervals and identified as separate components are capitalized and depreciated over their useful lives.

3.4. OTHER SHARES

EUR million	The shares of Pohjolan Voima Group	Other non-listed shares	Total
Net book value at Jan 1, 2017	201.0	1.5	202.5
Additions	3.3	0.3	3.6
Decreases	0.0	-0.3	-0.3
Change in fair value	30.0	0.0	30.0
Net book value at Dec 31, 2017	234.3	1.5	235.8
Net book value at Jan 1, 2018	234.3	1.5	235.8
Additions	-	-	-
Decreases	-	-	-
Change in fair value	-7.4	-0.1	-7.5
Net book value at Dec 31, 2018	226.9	1.4	228.4

SHARES IN THE POHJOLAN VOIMA GROUP

EUR million	Class of shares	Holding %	Class of assets	2018	2017
Pohjolan Voima Oy	A	5	hydro power	76.2	68.9
Pohjolan Voima Oy	B	2	nuclear power	43.2	40.9
Pohjolan Voima Oy 1)	B2	7	nuclear power	21.3	21.3
Teollisuuden Voima Oyj	A	2	nuclear power	83.3	78.8
Other Pohjolan Voima Oy and Teollisuuden Voima Oyj 2)	C, C2, G5, G6, M	several	several	3.0	24.4
Total				226.9	234.3

1) The plant supplier (AREVA-Siemens consortium) is building the Olkiluoto 3 (OL 3) nuclear power plant in Finland with fixed-price turnkey contracts. In spring 2005, the plant supplier started construction work with a contractual obligation to start the electricity production in the OL3 nuclear power plant in spring 2009. However, OL 3 has been delayed several times from its original start-up schedule. TVO's release on November 29, 2018, explains the updated schedule for the start-up of OL 3 nuclear plant by the plant supplier. According to the plant supplier, the nuclear fuel of OL 3 will be loaded into the reactor in June 2019, the first connection to the grid will take place in October 2019, and the start of regular electricity production of the OL 3 nuclear power plant unit will take place in January 2020.

In addition, in connection with the OL 3 project, an arbitration procedure was between the plant supplier and the owner of the plant, Teollisuuden Voima, regarding the delay in the project and the costs incurred. On March 11, 2018, TVO published information in which TVO confirmed that it has signed a settlement agreement related to the project's dispute with the OL3 plant supplier.

The uncertainty of the start-up date of regular electricity generation at the OL 3 nuclear power plant effects on the estimated fair value of the B2 series shares.

2) On September 12, 2018, Venator announced its intention to close its Pori TiO2 manufacturing facility. Resulting from the shut down announce, Kemira's fair value of PVO G6 share series has decreased by EUR 21.4 million.

Kemira Oyj owns 5% of Pohjolan Voima Oy, a company of the Pohjolan Voima Group, and 1% of its subsidiary Teollisuuden Voima Oyj.

The fair value of the shares is based on the discounted cash flow model. The discount rate used in the fair value calculation is the annually defined weighted average cost of capital. The short-term discount rate in 2018 was 3.8% (3.9%), and the long-term discount rate was 4.4% (4.7%). A 10% decrease in the electricity market price in the future would decrease the fair value of the shares by approximately EUR 35 million. An increase of one percentage point in the discount rate would decrease the fair value by approximately EUR 30 million.

The Group's accounting policies

Other shares

Other shares are classified at fair value through other comprehensive income. Changes in the fair value of other shares are recognized in other comprehensive income under equity in the fair value reserve taking the tax effect into account, including gains and losses from sales. The dividends are recognized in profit or loss. Other shares include non-listed companies, the shareholdings in Pohjolan Voima Oy (PVO) and Teollisuuden Voima Oyj (TVO) representing the largest investments.

PVO and its subsidiary TVO comprise a private electricity-generating group owned by Finnish manufacturing and power companies, to which it supplies electricity at cost. The PVO Group owns and operates two nuclear power plant units in Olkiluoto in the municipality of Eurajoki. Kemira Group has A and C series shares in TVO and A, B, C, G and M series shares in PVO. Different share series entitle the shareholder to electricity generated by different power plants. The owners of each share series are responsible for the fixed costs of the series in question in proportion to the number of the shares, regardless of whether they use their power or energy share or not, and for variable costs in proportion to the amount of energy used.

Kemira Oyj's holding in the PVO Group entitling Kemira to the electricity from completed power plants is measured at the fair value based on the discounted cash flow resulting from the difference between the market price of the electricity and the cost price. The forward electricity price quotations in Finland area published by the Nordic Electricity Exchange have been used as the basis for the market price for the electricity for the first five years, and after this, the development of the prices is based on a fundamental simulation model of the Nordic electricity market. The impact of inflation in the coming years is taken into account in the price of the electricity and the cost prices. The cost prices are determined by each share series. Future cash flows have been discounted based on the estimated useful lifecycles of the plants related to each share series, and hydro power also includes terminal value. The discount rate has been calculated using the annually determined average weighted cost of capital.

Critical accounting estimates and judgments

Estimated fair value of shares in the PVO Group
The Group's shareholding in the unlisted PVO Group is measured at fair value, based on the discounted cash flow resulting from the difference between the market price of electricity and the cost price using the valuation model. Developments in the actual fair value may differ from the estimated value due to factors, such as electricity prices, inflation, the forecast period or the discount rate.

3.5. BUSINESS COMBINATIONS

Acquisition of business with Kemira TC Wanfeng Chemicals Yanzhou company in China
On September 29, 2017, Kemira signed an agreement to form a company - Kemira TC Wanfeng Chemicals Yanzhou ("NewCo") - with Shandong Tiancheng Wanfeng Chemical Technology ("TC Wanfeng") which is an AKD producer in China. NewCo will strengthen Kemira's position as the leading global producer of chemicals in the Pulp & Paper industry.

NewCo mainly produces AKD wax and its key raw material fatty acid chloride (FACL). AKD wax for which the main component is based on renewable raw materials, is a sizing chemical used in board and paper manufacturing to create resistance against liquid absorption.

Through backward integration, Kemira expanding its position in the value chain. NewCo is the largest AKD wax manufacturing unit globally, improving Kemira's AKD wax capacity. NewCo's site is located in the same chemical park with Kemira's first AKD wax plant in Yanzhou, China and the proximity of the two sites results in operational synergies. The NewCo site also offers growth opportunities for other chemicals.

On November 30, 2018, Kemira closed the deal for the acquisition of business into NewCo and received final authority permits in China. The purchase price of the acquired business into NewCo was EUR 68 million and part of the purchase price is outstanding. The purchase price does not involve contingent consideration. Kemira owns 80% and TC Wanfeng 20% of NewCo. The deal includes put and call options regarding the TC Wangfeng 20% holding of NewCO's shares. The obligation related to the put option is recognized as a liability in the balance sheet.

The calculations under IFRS 3 related to the acquisition are provisional and the presented values of the assets and goodwill may change during the 12-month period during which the acquisition calculation will be finalized. Based on preliminary calculations, EUR 39 million was allocated to intangible assets as patents and a non-compete agreement. A provisional goodwill of EUR 2 million arises mainly from the expected synergy in the business combination. The acquired business has been consolidated into the Pulp & Paper segment starting on December 1, 2018.

The purchase price for the business on the acquisition date and the preliminary fair value for the amounts of the assets acquired and goodwill are as follows:

	EUR million
Purchase price of the acquisition, total	68
Intangible assets	43
Property, plant and equipment	23
Identifiable assets acquired	66
Goodwill	2
Net assets acquired at the acquisition date	68

In 2018, acquired business related costs of EUR 0.3 million (1.0) is included in other operating expenses. Revenue and EBITDA from the acquired business on December 1–31, 2018 had no material impact on Kemira's income statement in 2018.

The Group's accounting policies

Business combinations
Subsidiaries are fully consolidated from the date on which the control is transferred to the Group. They are de-consolidated from the date on which this control ceases.

The consideration transferred for acquisition of a subsidiary is defined as an aggregate of the fair values of the assets transferred, the liabilities assumed and the equity interest issued by the Group. The consideration transferred may include the fair value of any asset or liability resulting from the contingent consideration arrangement. Acquisition-related costs are expensed as incurred. Identifiable assets acquired, and liabilities and contingent liabilities that are assumed in a business combination are measured at their fair values on the acquisition date. On an acquisition-by-acquisition basis, the Group recognizes any non-controlling interest in the acquiree either at fair value or at the non-controlling interest's proportionate share of the acquiree's net assets.

The amount that exceeds the aggregate of the consideration transferred, the amount of any non-controlling interest in the acquiree and the acquisition-date fair value of any previous equity interest in the acquiree over the fair value of the Group's share of the net assets acquired is recognized as goodwill in the balance sheet. If this is less than the fair value of the net assets of the subsidiary acquired by bargain purchase, the difference is recognized directly in the income statement.

4. WORKING CAPITAL AND OTHER BALANCE SHEET ITEMS

NET WORKING CAPITAL

EUR million	Note	2018	2017
Inventories	4.1	283.8	223.8
Trade receivables and other receivables	4.2	420.2	418.8
Excluding financing items in other receivables [1]		-32.5	-21.4
Trade payables and other liabilities	4.3	439.1	422.8
Excluding financing items in other liabilities [1]		-28.0	-12.0
Total		260.4	210.5

1) Includes interest income and expenses, exchange gains and losses and hedging related items.

Quarterly information on net working capital is disclosed in the section on Reconciliation of IFRS figures.

4.1. INVENTORIES

EUR million	2018	2017
Materials and supplies	86.5	77.9
Finished goods	179.1	130.3
Prepayments	18.2	15.5
Total	283.8	223.8

In 2018, EUR 5.4 million (4.2) of the inventory value were recognized as an expense in order to decrease the book values of the inventories to correspond with their net realizable value.

The Group's accounting policies

Inventories
Inventories are measured at the lower of cost and net realizable value. Costs are determined on a first-in first-out (FIFO) basis or by using a weighted average cost formula, depending on the nature of the inventory. The cost of finished goods and work in progress include the proportion of production overheads of the normal capacity. The net realizable value is the sales price received in the ordinary course of business less the estimated costs for completing the asset and the sales costs.

4.2. TRADE RECEIVABLES AND OTHER RECEIVABLES

EUR million	2018	2017
Trade and other receivables		
Trade receivables	307.3	315.2
Prepayments	1.9	4.9
Prepaid expenses and accrued income	62.7	49.2
Other receivables	48.4	49.5
Total	420.2	418.8

AGING OF OUTSTANDING TRADE RECEIVABLES

	2018			2017
EUR million	Receivables, gross amount	Expected credit losses	Receivables, net amount	Receivables, net amount
Undue trade receivables	265,4	-0,2	265,2	266,3
Trade receivables 1–90 days overdue	40,9	-0,1	40,8	49,5
Trade receivables more than 91 days overdue	1,5	-0,2	1,3	-0,6
Total	307,8	-0,5	307,3	315,2

In 2018, impairment loss of trade receivables amounted to EUR 0.6 million (0.8).

In 2018, items that were due in a time period longer than one year included prepaid expenses and an accrued income of EUR 10.4 million (7.9), other receivables of EUR 5.0 million (10.8) and prepayments of EUR 0.6 million (0.4).

The Group's accounting policies

Trade receivables, loan receivables and other receivables
Trade receivables, loan receivables and other receivables are initially recognized at fair value and subsequently measured at amortized cost, taking impairment into account. These items are subject to a simplified impairment model in accordance with IFRS 9 standard, where the estimated amount of credit losses is based on the expected credit losses on life expectancy.

The expected credit loss rates for the impairment model vary for trade receivables by age distribution and geographical area of the EMEA, America and APAC. Credit loss rates are based on sales payment profiles and historical credit losses.

The expected credit losses for trade receivables are recognized using the simplified impairment model in accordance with IFRS 9 standard. The expected credit losses are calculated by multiplying the book value of unpaid trade receivables by the expected credit loss rate according to geographical area. In addition, any overdue trade receivables over 180 days are assessed based on a specific risk assessment.

Trade receivables, loan receivables and other receivables do not include a significant financial component.

4.3. TRADE PAYABLES AND OTHER CURRENT LIABILITIES

EUR million	2018	2017
Trade payables and other liabilities		
Prepayments received	1.9	1.1
Trade payables	179.9	187.2
Accrued expenses	230.0	203.4
Other non-interest-bearing current liabilities	27.4	31.1
Total	439.1	422.8
Accrued expenses		
Employee benefits	66.5	67.7
Items related to revenue and purchases	108.0	96.4
Interest	8.8	8.2
Exchange rate differences	17.9	0.0
Other	28.8	31.2
Total	230.0	203.4

The Group's accounting policies

Trade payables and other liabilities
Trade payables are initially recognized at fair value and subsequently measured at amortized cost.

4.4. DEFERRED TAX LIABILITIES AND ASSETS

EUR million	Jan 1, 2018	Recognized in the income statement	Recognized in other comprehensive income	Recognized in equity	Acquired and disposed subsidiaries	Exchange differences and reclassifications	Dec 31, 2018
Deferred tax liabilities							
Depreciations and untaxed reserves	41.3	2.4				1.7	45.4
Other shares	22.7		-1.5				21.2
Defined benefit pensions	11.1	-0.1	2.9				13.8
Fair value adjustments of net assets acquired [1]	4.8	-1.5				0.0	3.3
Other items	5.2	-1.0	1.5	0.5		-1.0	5.3
Total	85.1	-0.1	2.9	0.5	0.0	0.7	89.1
Deducted from deferred tax assets	-22.7						-17.9
Deferred tax liabilities in the balance sheet	62.4						71.1
Deferred tax assets							
Provisions	13.8	0.0				0.4	14.1
Tax losses	10.4	-1.0				-0.1	9.3
Defined benefit pensions	9.9	0.1	0.3			-0.2	10.2
Other items [2]	13.8	2.7	-3.9			0.0	12.6
Total	47.9	1.8	-3.6	0.0	0.0	0.0	46.1
Deducted from deferred tax liabilities	-22.7						-17.9
Deferred tax assets in the balance sheet	25.2						28.2

1) The identifiable assets acquired and liabilities assumed in a business combination are recognized at their fair values. The resulting deferred taxes affect goodwill.

2) Other items includes a EUR 0.4 million adjustment related to the adoption of IFRS 9 Financial Instruments standard on January 1, 2018, as well as the amendment in IFRS 2 Share-based Payments standard. Further information of the standard changes is available in Note 1. The Group's accounting policies.

EUR million	Jan 1, 2017	Recognized in the income statement	Recognized in other comprehensive income	Recognized in equity	Acquired and disposed subsidiaries	Exchange differences and reclassifications	Dec 31, 2017
Deferred tax liabilities							
Depreciations and untaxed reserves	56.8	-11.2				-4.4	41.3
Other shares	16.7		6.0				22.7
Defined benefit pensions	7.8	-0.1	3.3				11.0
Fair value adjustments of net assets acquired [1]	7.3	-2.4				-0.1	4.8
Other items	18.7	-2.0	-11.5	0.3		-0.2	5.2
Total	107.3	-15.6	-2.2	0.3	0.0	-4.7	85.1
Deducted from deferred tax assets	-44.1						-22.7
Deferred tax liabilities in the balance sheet	63.2						62.4
Deferred tax assets							
Provisions	16.1	-4.8				2.5	13.8
Tax losses	22.8	-6.5				-5.9	10.4
Defined benefit pensions	8.1	1.0	1.0			-0.1	9.9
Other items [2]	24.6	-11.2	-0.6			0.6	13.4
Total	71.6	-21.6	0.4	0.0	0.0	-2.9	47.6
Deducted from deferred tax liabilities	-44.1						-22.7
Deferred tax assets in the balance sheet	27.5						24.8

1) The identifiable assets acquired and liabilities assumed in a business combination are recognized at their fair values. The resulting deferred taxes affect goodwill.

2) Other items includes a EUR 0.4 million adjustment related to the adoption of IFRS 9 Financial Instruments standard on January 1, 2018, as well as the amendment in IFRS 2 Share-based Payments standard. Further information of the standard changes is available in Note 1. The Group's accounting policies.

As a result of the change in tax legislation signed on December 22, 2017, the U.S. corporate tax rate was reduced from 35% to 21%. Therefore, the relevant deferred tax balances have been remeasured at the new 21% tax rate in the Consolidated Financial statements for year ending on December 31, 2017. The change in the U.S. corporate income tax is presented in more detail in Note 2.6. Income taxes.

The Group's accounting policies

Deferred taxes

Deferred tax is recognized, using the liability method, on temporary differences arising between the tax bases of the assets and liabilities and their carrying amounts in the Consolidated Financial Statements. However, deferred tax liabilities are not recognized if they arise from the initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting profit nor taxable profit or loss. Deferred income tax is determined using tax rates (and laws) that have been enacted or substantially enacted by the balance sheet date and are expected to apply when the related deferred income tax asset is realized or the deferred income tax liability is settled.

Deferred income tax assets are recognized only to the extent that it is probable that a future taxable profit will be available against which the temporary differences can be utilized.

Deferred income tax is provided on temporary differences arising on investments in subsidiaries and associates, except for deferred income tax liability where the timing of the reversal of the temporary difference is controlled by the Group and it is probable that the temporary difference will not reverse in the foreseeable future.

Deferred income tax assets and liabilities are offset when there is a legally enforceable right to offset the current tax assets against current tax liabilities, and when the deferred income taxes assets and liabilities relate to the income taxes levied by the same taxation authority on either the same tax entity or different taxable entities where there is an intention to settle the balances on a net basis.

Critical accounting estimates and judgments

Deferred taxes

For the recognition of deferred tax assets for tax losses and other items, the management assesses the amount of a probable future taxable profit against which unused tax assets can be utilized. Actual profits may differ from the forecasts and in such cases, the change will affect the taxes in future periods.

4.5. DEFINED BENEFIT PENSION PLANS AND EMPLOYEE BENEFITS

The Group has several defined benefit pension plans and other employee benefit obligations. The main defined benefit pension plans are in Finland, Sweden, Germany, the UK and Norway.

Finland

The Group's most significant defined benefit plan is in Finland, through Pension Fund Neliapila, which takes care of part of some employees' supplementary pension benefits. The Pension Fund Neliapila covers employees whose employment with Kemira began before January 1, 1991, meaning that the fund is closed to new employees. The plan is a final average pay pension plan relating to supplementary pension benefits. The obligations of Pension Fund Neliapila are a total of EUR 212.3 million (241.1) and assets of the plan are EUR 272.6 million (287.4).

The Pension Fund Neliapila's supplementary benefit includes old-age pensions, disability pensions, survivors' pensions and funeral grants. The aggregated pension benefit is 66% of the pension salary. To qualify for a full pension, an employee must have accrued a pensionable service of 25 years. The supplementary pension benefits is the difference between the aggregated and compulsory pension benefits. At the beginning of 2017, the pension legislation was amended so that the retirement age will increase gradually from 63 years upwards. Under the new rules, the Pension Fund Neliapila will compensate for a portion of this increase in the retirement age. This had no material impact on the pension fund's liabilities.

The Board of Directors of Pension Fund Neliapila decided on December 2018 to return the fund's surplus of EUR 15 million to Kemira Group companies. The surplus return will be paid by Pension Fund Neliapila if an approval is obtained from the Financial Supervisory Authority. The approval is required by the Pension Fund Act. The surplus payment is expected to take place during the first half of 2019. The surplus return of the pension plan assets will be recognized as a re-classification to financial assets in the Group's consolidated balance sheet.

Sweden

In Sweden, there is a defined benefit pension plan called the ITP 2 plan for white-collar employees. To qualify for a full pension, an employee must have a projected period of pensionable service, from the date of entry until retirement age, of at least 30 years. The pension arrangements comprise the normal retirement pension, complementary retirement pensions and a survivors' pension. In addition, Kemira must have credit insurance from PRI Pensionsgaranti Mutual Insurance Company for the ITP 2 plan pension liability. The defined benefit obligations in Sweden is a total of EUR 47.1 million (46.6).

ASSETS AND LIABILITIES OF DEFINED BENEFIT PLANS RECOGNIZED IN THE BALANCE SHEET

EUR million	2018	2017
Present value of defined benefit obligations	306.7	343.9
Fair value of plan assets	-287.9	-310.4
Surplus (-) / Deficit (+)	18.7	33.5
The effect of asset ceiling	0.7	0.7
Net recognized assets (-) / liabilities (+) in the balance sheet	19.4	34.3
Liabilities of defined benefit plans	81.2	82.3
Receivables of defined benefit plans	-61.8	-48.0
Net receivables (-) / liabilities (+) of defined benefit plans recognized in the Balance Sheet	19.4	34.3
AMOUNTS OF DEFINED BENEFIT PLANS RECOGNISED IN THE INCOME STATEMENT		
Service costs	2.7	3.5
Net interest cost 1)	1.0	1.3
Defined benefit expenses (+) / income (-) in the Income Statement	3.7	4.8

1) Net interest costs are presented in net finance costs in the Income Statement.

DEFINED BENEFIT PLANS RECOGNISED IN THE OTHER COMPREHENSIVE INCOME

EUR million	2018	2017
Items resulting from remeasurements of defined benefit plans 2)		
Actuarial gains (-) / losses (+) in defined benefit obligations arising from changes in demographic assumptions	0.1	0.1
Actuarial gains (-) / losses (+) in defined benefit obligations arising from changes in financial assumptions 3)	-13.7	1.2
Actuarial gains (-) / losses (+) in defined benefit obligations arising from experience based assumptions	-4.3	-3.4
Actuarial gains (-) / losses (+) in plan assets 3)	4.6	-11.2
Effect from asset ceiling	0.0	0.7
Defined benefit plan expenses (+) / income (-) in the other comprehensive income	-13.3	-12.6

2) The remeasurements of defined benefit plans are included in the Statement of Comprehensive Income as part of other comprehensive income. The item has been disclosed net of tax and the related income tax is disclosed in Note 2.8. Other comprehensive income.

3) In 2018 and 2017, the actuarial gains and losses are mainly due to return on assets and change in the discount rate in Pension Fund Neliapila.

CHANGES IN THE DEFINED BENEFIT OBLIGATIONS OVER THE PERIOD

EUR million	2018	2017
Defined benefit obligation at 1 Jan	343.9	359.0
Current service costs	2.3	3.1
Interest costs	5.2	5.6
Actuarial losses (+) / gains (-)	-17.9	-2.1
Exchange differences on foreign plans	-2.2	-2.6
Benefits paid	-18.5	-19.2
Curtailments and settlements 4)	-6.1	0.0
Past service costs	0.0	0.0
Other items	0.1	0.1
Present value of defined benefit obligations at 31 Dec	306.7	343.9

CHANGES IN PLAN ASSETS OVER THE PERIOD IN DEFINED BENEFIT PLANS

EUR million	2018	2017
Fair value at 1 Jan	310.4	311.3
Interest income	4.2	4.3
Contributions	0.5	0.7
Actuarial losses (-) / gains (+)	-4.6	11.2
Exchange differences on foreign plans	-0.5	-1.1
Benefits paid	-15.5	-15.6
Settlements 4)	-6.5	0.0
Other items	-0.2	-0.4
Fair value of plan assets at 31 Dec	287.9	310.4

4) In Canada, the defined benefit (DB) pension plan has been converted to a defined benefit contribution plan. DB pension obligations have been transferred to an insurance company. Due to the DB plan surplus position, the wind-up of the DB plan has generated a settlement loss in profit or loss of EUR 0.2 million in the financial statements for 2018.

PLAN ASSETS BY ASSET CATEGORY IN DEFINED BENEFIT PLANS

EUR million	2018	2017
Interest rate investments and other assets	224.9	186.9
Shares and share funds	38.2	106.7
Properties occupied by the Group	23.7	15.5
Kemira Oyj's shares	1.1	1.3
Total assets	287.9	310.4

The Finnish Pension Fund Neliapila, which has most of the defined benefit plan's assets of EUR 272.6 million (287.4), consists of interest rate investments and other assets of EUR 212.5 million (176.9), shares and share funds of EUR 35.2 million (93.7), properties of EUR 23.7 million (15.5) and Kemira Oyj´s shares of EUR 1.1 million (1.3). In Pension Fund Neliapila, the investment position is managed within an asset-liability matching (ALM) framework that has been developed to combine long-term investments in line with the obligations under the pension plan. In Pension Fund Neliapila, a market risk can be considered a significant investment risk. The market risk arising from cyclical fluctuations of the financial market, is managed by ensuring that the investment position is sufficiently diversified.

The income (+) / expense (-) of the actual returns on the plan assets of the Group's defined benefit plan were EUR -0.4 million (15.4).

SIGNIFICANT ACTUARIAL ASSUMPTIONS

%	2018	2017
Discount rate	1.6 - 3.1	1.3 - 3.3
Inflation rate	1.1 - 2.5	1.1 - 2.5
Future salary increases	1.4 - 2.8	1.6 - 3.0
Future pension increases	0.8 - 2.5	0.4 - 3.0

The significant assumptions used in calculating the obligations of the Finnish Pension Fund Neliapila were as follows: discount rate 1.6% (1.3%), inflation rate 1.4% (1.6%), future salary increases 1.4% (1.6%) and future pension increases 1.7% (1.9%).

Sensitivity analysis

The sensitivity analysis is based on keeping other assumptions constant when one assumption is changed. In practice, this is unlikely to occur and changes in some of the assumptions may correlate with each other. When calculating the sensitivity of the defined benefit obligation to significant actuarial assumptions the same method has been applied as when calculating the pension liability recognized within the balance sheet.

If the discount rate would be 0.5 percentage points lower in all of the significant countries, the defined benefit obligation would increase by EUR 17.5 million (5.9%) if all other assumptions were held constant.

PENSION FUND NELIAPILA IN FINLAND

	Defined benefit obligation		Impact on defined benefit obligation	
EUR million	2018	2017	2018	2017
Discount rate 1.6% (2017: 1.3%)	212.3	241.0		
Discount rate +0.5%	200.8	227.2	-5.4%	-5.7%
Discount rate -0.5%	225.0	256.5	6.0%	6.4%
Future pension increases 1.7% (2017: 1.9%)	212.3	241.0		
Future pension increases +0.5%	223.6	254.8	5.4%	5.7%
Future pension increases -0.5%	201.9	228.4	-4.9%	-5.2%

A change in mortality assumption of an increase in life expectancy by one year will increase the defined benefit obligation by EUR 9.2 million (4.3%).

ITP 2 PENSION PLAN IN SWEDEN

	Defined benefit obligation		Impact on defined benefit obligation	
EUR million	2018	2017	2018	2017
Discount rate 2.3% (2017: 2.2%)	47.1	46.6		
Discount rate +0.5%	43.7	43.2	-7.2%	-7.3%
Discount rate -0.5%	51.0	50.4	8.3%	8.2%
Future salary increases 2.5% (2017: 2.5%)	47.1	46.6		
Future salary increases +0.5%	48.2	47.8	2.3%	2.4%
Future salary increases -0.5%	46.1	45.5	-2.1%	-2.6%

A change in mortality assumption of an increase in life expectancy by one year will increase the defined benefit obligation by EUR 2.1 million (4.5%).

Expected contributions to the defined benefit plans for the year ending on December 31, 2019, are EUR 2.9 million. In addition, the return of surplus of EUR 15 million from Pension Fund Neliapila is expected to take place during 2019.

The Group's accounting policies

Defined benefit pension plans and employee benefits
The Group has different post-employment schemes, including both defined contribution and defined benefit pension plans in accordance with the local conditions and practices in the countries in which it operates. Pension plans are generally funded through contributions to pension insurance companies or a separate pension fund.

A defined contribution plan is a pension plan under which the Group pays fixed contributions into a separate entity. The Group has no legal or constructive obligations to pay further contributions if the fund does not hold sufficient assets to pay all employees the benefits relating to employee service in the current and prior periods. A defined benefit plan is a pension plan that is not a defined contribution plan.

Typically defined benefit plans define an amount of pension benefit that an employee will receive on retirement, usually dependent on one or more factors such as their compensation level and years of service.

The liability recognized in the balance sheet in respect to the defined benefit pension plans is the present value of the defined benefit obligation at the end of the reporting period less the fair value of plan assets. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid, and with their terms to maturity approximating to the terms of the related pension obligation. In countries where there is no deep market in such bonds, the market rates for government bonds are used.

Actuarial gains and losses arising from experience adjustments and changes in actuarial assumptions are charged or credited to equity in other comprehensive income in the period in which they arise.

Current service costs are included in the Consolidated Income Statement in the employee benefit expenses and net interest costs on finance income and finance expense. Past-service costs are recognized immediately in profit or loss.

For defined contribution plans, the Group pays contributions to publicly or privately administered pension insurance plans on a mandatory, contractual or voluntary basis. The Group has no further payment obligations once the contributions have been paid. The contributions are recognized as employee benefit expenses when they are due. Prepaid contributions are recognized as an asset to the extent that a cash refund or a reduction in the future payments is available.

Critical accounting estimates and judgments

Defined benefit pension plans

Determining pension liabilities under defined benefit pension plans includes a number of actuarial assumptions, and significant changes in these assumptions may affect the amounts of pension liabilities and expenses. Actuarial calculations include assumptions by the management, such as the discount rate and assumptions of salary increases and the termination of employment contracts. The pension liability is calculated by independent actuaries.

4.6. PROVISIONS

EUR million	Personnel related provisions	Restructuring provisions	Environmental provisions [1]	Other provisions	Total
Non-current provisions					
At January 1, 2018	0.3	1.6	17.7	7.6	27.2
Exchange rate differences			-0.1	-0.6	-0.7
Additional provisions and increases in existing provisions	1.4		3.7	0.2	5.4
Used during the financial year			-0.4	-0.6	-1.0
Unused provisions reversed	-0.1		-1.1		-1.2
Reclassification		-0.2			-0.2
At December 31, 2018	1.6	1.4	19.9	6.6	29.6
Current provisions					
At January 1, 2018	5.1	4.7	1.5	0.0	11.3
Exchange rate differences	0.1				0.1
Additional provisions and increases in existing provisions	5.2	0.1	1.1		6.4
Used during the financial year	-4.2	-3.8	-0.2		-8.3
Unused provisions reversed	-0.5		-0.1		-0.6
Reclassification		0.2			0.2
At December 31, 2018	5.6	1.2	2.4	0.0	9.2

EUR million	2018	2017
Analysis of total provisions		
Non-current provisions	29.6	27.2
Current provisions	9.2	11.3
Total	38.7	38.5

1) The bulk of Kemira's business is in the chemical industry. The Group's operations are governed by numerous international agreements and regional and national legislation all over the world. The Group treats its environmental liabilities and risks in accordance with the established internal principles and procedures. In 2018, provisions for environmental remediation totaled EUR 22.3 million (19.2). The biggest provisions relate to site closures and reconditioning of the sediment of a lake in Vaasa, Finland.

The Group's accounting policies

Provisions

Provisions for restructuring costs, personnel related costs, environmental obligations, legal claims, and onerous contracts are recognized when the Group has a present legal or constructive obligation as a result of past events, and it is probable that an outflow of resources will be required to settle the obligation, and a reliable estimate of the amount of this obligation can be made. A restructuring provision is recognized when there is a detailed and appropriate plan prepared for it and the implementation of the plan has begun or has been notified to those whom the restructuring concerns.

The amount recognized as a provision is the present value of the expenditure expected to be required to settle the obligation on the balance sheet date using a pre-tax interest rate that reflects current market assessments of the time value of money and the risks specific to the obligation.

Critical accounting estimates and judgments

Provisions

Recognizing provisions requires the management's estimates, since the precise amount of obligations related to the provisions is not known when preparing the Financial Statements.

5. CAPITAL STRUCTURE AND FINANCIAL RISKS

5.1. CAPITAL STRUCTURE

EUR million	2018	2017
Equity	1,202.5	1,172.8
Total assets	2,763.8	2,674.9
Gearing [1]	62%	59%
Equity ratio [2]	44%	44%

1) The definition of the key figure for Gearing is 100 x Interest-bearing net liabilities / Total equity.
2) The definition of the key figure for the Equity ratio is 100 x Total equity / (Total assets - prepayments received).

INTEREST-BEARING NET LIABILITIES

EUR million	Note	2018	2017
Non-current interest-bearing liabilities	5.3.	646.3	669.1
Current interest-bearing liabilities	5.3.	240.0	191.4
Interest-bearing liabilities		886.3	860.5
Cash and cash equivalents	5.4.	144.9	166.1
Interest-bearing net liabilities		741.4	694.4

Quarterly information on interest-bearing net liabilities is disclosed in the section on the Reconciliation of IFRS figures.

The Group's objective is to maintain a gearing ratio below 60% before the adoption of IFRS 16 -standard. To calculate the gearing ratio, interest-bearing net liabilities (interest-bearing liabilities less cash and cash equivalents) are divided by the shareholders' equity. The revolver credit facility agreement contains a covenant according to which the company gearing must be below 100%.

The Board of Directors will propose a per-share dividend of EUR 0.53 for 2018 (EUR 0.53), corresponding to a dividend payout ratio of 91% (103%). Kemira's dividend policy aims at paying a stable and competitive dividend.

INTEREST-BEARING NET LIABILITIES CONNECTED IN CASH FLOW STATEMENTS

EUR million	Non-current interest-bearing liabilities including payments of non-current portion	Current interest-bearing liabilities	Interest-bearing liabilities total	Cash and cash equivalents	Interest-bearing net liabilities
Net book value at Jan 1, 2017	712.8	94.6	807.4	173.4	634.0
Change in net liabilities with cash flows					
Proceeds from non-current liabilities (+)	100.0		100.0		100.0
Payments of non-current liabilities (-)	-62.1		-62.1		-62.1
Proceeds from current liabilities (+) and payments (-)		36.3	36.3		36.3
Change in cash and cash equivalents				0.3	-0.3
Change in net liabilities without cash flows					
Effect on change in exchange gains and losses	-9.7	-6.1	-15.8	-7.5	-8.3
Other changes without cash flows	-0.8	-4.5	-5.3		-5.3
Net book value at Dec 31, 2017	740.1	120.4	860.5	166.1	694.4

EUR million	Non-current interest-bearing liabilities including payments of non-current portion	Current interest-bearing liabilities	Interest-bearing liabilities total	Cash and cash equivalents	Interest-bearing net liabilities
Net book value at Jan 1, 2018	740.1	120.4	860.5	166.1	694.4
Change in net liabilities with cash flows					
Proceeds from non-current liabilities (+)	96.2		96.2		96.2
Payments of non-current liabilities (-)	-69.2		-69.2		-69.2
Proceeds from current liabilities (+) and payments (-)		10.3	10.3		10.3
Change in cash and cash equivalents				-21.2	21.2
Change in net liabilities without cash flows					
Effect on change in exchange gains and losses	-3.3	-0.9	-4.2	-0.1	-4.1
Other changes without cash flows	-7.1	-0.2	-7.3	0.1	-7.4
Net book value at Dec 31, 2018	756.8	129.5	886.3	144.9	741.4

The Group's accounting policies

Interest-bearing liabilities and cash and cash equivalents

The accounting policies for interest-bearing liabilities and cash and cash equivalents are described in Note 5.4. Financial assets and liabilities by measurement categories.

Dividend distribution

Any dividend proposed by the Board of Directors is not deducted from distributable equity until it has been approved by the Annual General Meeting.

5.2. SHAREHOLDERS' EQUITY

SHARE CAPITAL AND TREASURY SHARES

EUR million	Number of shares outstanding (1,000)	Number of treasury shares (1,000)	Number of shares (1,000)	Book value of share capital	Book value of treasury shares
January 1, 2017	152,367	2,975	155,343	221.8	20.0
Treasury shares issued to the Board of Directors	10	-10	-	-	-0.1
The shares returned by participants from the long-term share incentive plan 2015	-24	24	-	-	0.2
December 31, 2017	152,354	2,989	155,343	221.8	20.1
January 1, 2018	152,354	2,989	155,343	221.8	20.1
Treasury shares issued to the participants in the long-term share incentive plan 2017	149	-149	-	-	-1.0
Treasury shares issued to the Board of Directors	10	-10	-	-	-0.1
The shares returned by participants from the long-term share incentive plan 2017	-3	3	-	-	0.0
December 31, 2018	152,510	2,832	155,343	221.8	19.1

Kemira Oyj has one class of shares. Each share entitles its holder to one vote at the Annual General Meeting. On December 31, 2018, the share capital was EUR 221.8 million and the number of shares was 155,342,557 including 2,832,297 treasury shares. Under the Articles of Association of Kemira Oyj, the company does not have a minimum or maximum share capital or a par value for a share. All issued shares have been fully paid.

Kemira had possession of 2,832,297 (2,988,935) treasury shares on December 31, 2018. The average share price of the treasury shares was EUR 6.73 and they represented 1.8% (1.9%) of the share capital, and the aggregate number of votes conferred by all shares. The aggregate par value of the treasury shares is EUR 4.0 million.

Share premium

The share premium is a reserve accumulated through subscriptions that are entitled by the management stock option program of 2001. This reserve is based on the old Finnish Companies Act (734/1978), and the value of reserve will not change anymore.

Fair value reserves

The fair value reserve is a reserve accumulated based on other shares measured at fair value and hedge accounting.

Other reserves

Other reserves originate from local legal requirements. On December 31, 2018, other reserves were EUR 3.9 million (4.0).

Unrestricted equity reserve

The unrestricted equity reserve includes other equity type investments and the subscription price of shares to the extent that they will not, based on a specific decision, be recognized in share capital.

Exchange differences

The foreign currency exchange differences arise from the translation of foreign subsidiaries' financial statements. Additionally, loans have been granted to some foreign subsidiaries, and the exchange differences of these have been included in foreign currency exchange differences.

The Group's accounting policies

Treasury shares

Purchases of own shares (treasury shares), including the related costs, are deducted directly from equity in the Consolidated Financial Statements.

5.3. INTEREST-BEARING LIABILITIES

MATURITY OF INTEREST-BEARING LIABILITIES

2018, EUR million	2019	2020	2021	2022	2023	2024-	Book value total
Loans from financial institutions	10.4	55.4	-	-	148.1	90.0	303.9
Bonds	100.0	-	-	150.0	-	194.8	444.8
Finance lease liabilities	0.0	0.0	-	-	-	-	0.1
Other non-current liabilities	-	1.8	-	-	6.1	-	7.9
Other current interest-bearing liabilities	129.5	-	-	-	-	-	129.5
Total amortizations of interest-bearing liabilities	240.0	57.2	0.0	150.0	154.2	284.8	886.3

2017, EUR million	2018	2019	2020	2021	2022	2023-	Book value total
Loans from financial institutions	71.0	11.9	205.0	-	-	-	287.9
Bonds	-	100.0	-	-	150.0	200.0	450.0
Finance lease liabilities	0.0	0.0	-	-	-	-	0.1
Other non-current liabilities	-	-	2.3	-	-	-	2.3
Other current interest-bearing liabilities	120.4	-	-	-	-	-	120.4
Total amortizations of interest-bearing liabilities	191.4	111.9	207.3	0.0	150.0	200.0	860.5

At year's end 2018, the Group's interest-bearing net liabilities were EUR 741.4 million (694.4). For more information, see Note 5.1. Capital structure.

MATURITY OF NON-CURRENT INTEREST-BEARING LIABILITIES BY CURRENCIES

2018 Currency, EUR million	2019	2020	2021	2022	2023	2024-	Book value total
EUR	110.2	57.2	-	150.0	148.1	284.8	750.3
USD	-	-	-	-	-	-	-
Other	0.2	-	-	-	6.1	-	6.3
Total	110.4	57.2	0.0	150.0	154.2	284.8	756.6

2017 Currency, EUR million	2018	2019	2020	2021	2022	2023-	Book value total
EUR	10.0	111.6	207.3	-	150.0	200.0	678.9
USD	60.7	-	-	-	-	-	60.7
Other	0.3	0.2	-	-	-	-	0.6
Total	71.0	111.9	207.3	0.0	150.0	200.0	740.1

FINANCE LEASE AGREEMENTS

EUR million	2018	2017
Acquisition cost - capitalized finance leases	3.5	3.5
Accumulated depreciation	-3.1	-2.6
Book value at 31 Dec	0.4	1.0
Maturity of minimum lease payments		
No later than 1 year	0.0	0.0
1–5 years	0.0	0.0
Later than 5 years	-	-
Total minimum lease payments	0.1	0.1
Present value of finance lease liabilities		
Total minimum lease payments	0.1	0.1
Future finance charges on finance leases	0.0	0.0
Total	0.1	0.1
Maturity of the present value of finance lease liabilities		
No later than 1 year	0.0	0.0
1–5 years	0.0	0.0
Later than 5 years	-	-
Total present value of finance lease liabilities	0.1	0.1

The Group leases buildings and constructions, machinery and equipment and other property, plant and equipment under finance lease agreements. Commitments related to other lease agreements than finance leases are disclosed in Note 7.1. Commitments and contingent liabilities.

The Group's accounting policies

Finance lease
Leases involving tangible assets, in which the Group acts as a lessee, are classified as finance leases if all of the risks and rewards of ownership transfer substantially to the Group.

At the commencement of the lease term, the finance lease assets are recognized at the lower of the fair value of the leased asset and the present value of the minimum lease payments. These assets and related rental obligations are presented as part of the Group's non-current assets and interest-bearing liabilities. In respect to the finance lease agreements, depreciation on the leased assets and interest expenses from the associated liability are shown in the income statement. Rents paid on the basis of operating leases are expensed on a straight-line basis over the lease terms.

When the Group is a lessor, it recognizes assets held under the finance lease as receivables in the balance sheet. Assets held under operating leases are included in property, plant and equipment.

Also arrangements that are not leases in their legal form but convey the rights to use assets in return for a payment or series of payments are treated as leases.

5.4. FINANCIAL ASSETS AND LIABILITIES BY MEASUREMENT CATEGORIES

BOOK VALUES OF FINANCIAL ASSETS

EUR million	Note	2018	2017
Fair value through profit and loss	5.6.		
Derivatives not qualifying for hedge accounting		2.1	3.9
Fair value through other comprehensive income	5.6.		
Derivatives qualifying for hedge accounting			
Cash flow hedges		27.8	7.0
Fair value hedges		1.7	2.7
Other shares	3.4.		
The shares of Pohjolan Voima Group		226.9	234.3
Other non-listed shares		1.4	1.5
Amortized cost			
Other non-current assets [1)]		2.3	3.8
Current interest-bearing loan receivables [1)]		0.2	5.3
Trade receivables [1)]	4.2.	307.3	315.2
Cash and cash equivalents			
Cash in hand and at bank accounts		135.6	124.6
Deposits and money market investments [2)]		9.3	41.6
Total financial assets		714.7	739.9

1) In 2018, other non-current liabilities and current interest-bearing loan receivables include expected credit losses of EUR 0.6 million in accordance with IFRS 9 standard. Trade receivables include expected credit losses of EUR 0.5 million. Trade receivables are disclosed in more detail in Note 4.2. Trade receivables and other receivables.

2) Deposits and money market investments comprise bank deposits and other liquid investments with a maximum original maturity of three months.

BOOK VALUES OF FINANCIAL LIABILITIES

EUR million	Note	2018	2017
Fair value through profit and loss	5.6.		
Derivatives not qualifying for hedge accounting		2.2	3.7
Fair value through other comprehensive income	5.6.		
Derivatives qualifying for hedge accounting			
Cash flow hedges		1.3	1.7
Amortized cost			
Interest-bearing liabilities	5.3.		
Non-current loans from financial institutions		293.1	215.2
Current portion		10.2	71.0
Bonds [3)]		345.2	451.5
Current portion		100.0	0.0
Other non-current liabilities		8.0	2.4
Current portion		0.2	0.0
Current loans from financial institutions		129.5	120.4
Non-interest-bearing liabilities			
Other non-current liabilities		29.0	21.4
Other current liabilities		27.4	31.0
Trade payables	4.3.	179.9	187.2
Total financial liabilities		1,126.0	1,105.5

3) Includes a hedge accounting adjustment of EUR 0.4 million (1.5).

FAIR VALUE OF FINANCIAL ASSETS

Fair value hierarchy, EUR million	2018				2017			
	Level 1	Level 2	Level 3	Total net	Level 1	Level 2	Level 3	Total net
Other shares	-	-	228.4	228.4	-	-	235.8	235.8
Other non-current assets	-	2.3	-	2.3	-	3.8	-	3.8
Currency derivatives	-	2.1	-	2.1	-	3.9	-	3.9
Currency derivatives, hedge accounting	-	0.2	-	0.2	-	0.8	-	0.8
Interest rate derivatives, hedge accounting	-	1.7	-	1.7	-	2.7	-	2.7
Other derivatives, hedge accounting	-	27.6	-	27.6	-	6.2	-	6.2
Other receivables	-	0.2	-	0.2	-	5.3	-	5.3
Trade receivables	-	307.3	-	307.3	-	315.2	-	315.2
Cash and cash equivalents	-	144.9	-	144.9	-	166.1	-	166.1
Total financial assets	-	486.3	228.4	714.7	-	504.0	235.8	739.8

Level 3 specification, EUR million	Total net 2018	Total net 2017
Net book value at 1 Jan	235.8	202.5
Effect on other comprehensive income	-7.5	30.0
Increases	0.0	3.6
Decreases	0.0	-0.3
Net book value at 31 Dec	228.4	235.8

FAIR VALUE OF FINANCIAL LIABILITIES

Fair value hierarchy, EUR million	2018				2017			
	Level 1	Level 2	Level 3	Total net	Level 1	Level 2	Level 3	Total net
Non-current interest-bearing liabilities	-	671.1	-	671.1	-	697.2	-	697.2
Current portion of non-current interest-bearing liabilities	-	110.6	-	110.6	-	74.8	-	74.8
Non-current other liabilities	-	29.0	-	29.0	-	21.4	-	21.4
Finance lease liabilities	-	0.1	-	0.1	-	0.1	-	0.1
Short-term loans from financial institutions	-	136.0	-	136.0	-	126.8	-	126.8
Other current liabilities	-	27.4	-	27.4	-	31.0	-	31.0
Currency Derivatives	-	2.2	-	2.2	-	3.7	-	3.7
Interest rate derivatives, hedge accounting	-	1.3	-	1.3	-	1.6	-	1.6
Other derivatives, hedge accounting	-	-	-	-	-	0.1	-	0.1
Trade payables	-	179.9	-	179.9	-	187.2	-	187.2
Total financial liabilities	-	1,157.6	-	1,157.6	-	1,143.9	-	1,143.9

There were no transfers between levels 1–3 during the financial year.

The Group's accounting policies

When a financial asset or a financial liability is initially recognized on the trade date, it is measured at cost, which equals the fair value of the consideration given or received.

Financial Assets

The Group's financial assets are classified for subsequent measurement as financial assets at fair value through profit or loss, at amortized cost and at fair value through other comprehensive income.

Category	Financial instrument
Fair value through profit or loss	Currency forward contracts, currency swaps, interest rate swaps, electricity forwards, electricity futures, electricity options, certificates of deposit and commercial papers
Amortized cost	Non-current loan receivables, cash in hand and at bank accounts, bank deposits, trade receivables and other receivables
Fair value through other comprehensive income	Other investments: shares; derivatives qualifying for hedge accounting (cash flow or fair value hedging)

Financial assets at fair value through income statements

All derivatives are recognized at fair value in the balance sheet. Fair value is the amount for which an asset could be exchanged or loans paid between knowledgeable, willing parties in an arm's length transaction. These derivative contracts to which hedge accounting in accordance with IFRS 9 is not applied are classified as financial assets at fair value through profit or loss. In the balance sheet, these derivative contracts are shown under prepaid expenses and accrued income and accrued expenses and prepaid income. Any gains or losses arising from changes in fair value are recognized through profit or loss on the transaction date.

Financial assets at amortized cost

Financial assets at amortized cost include non-current receivables carried at amortized cost using the effective interest rate method and accounting for any impairment.

Cash and cash equivalents

Cash and cash equivalents consist of cash in hand and cash in bank accounts, demand deposits and other short-term, highly liquid investments. Items classified as cash and cash equivalents have a maximum maturity of three months from the date of purchase. Credit facilities in use are included in current interest-bearing liabilities.

Financial assets at fair value through other comprehensive income

The accounting policy of Other shares is described in Notes 3.4. Other shares. The accounting treatment of change in the fair value of the derivatives qualifying for hedge accounting is presented in 5.6. Derivatives.

Impairment of financial assets

The Group assesses any impairment losses on its financial instruments on each balance sheet date. An impairment of financial asset is recognized in accordance with the requirements of expected credit loss model of IFRS 9 standard. For items measured at an amortized cost, the amount of the impairment loss equals the difference between the asset's carrying amount and the present value of estimated future cash flows from the receivable. This is discounted at the financial asset's original effective interest rate. For items measured at fair value, the fair value determines the amount of impairment. Impairment charges are recognized in the income statement.

The Group sells certain trade receivables to finance companies within the framework of limits stipulated in the agreement. The credit risk associated with these sold receivables and contractual rights to the financial assets in question are transferred from the Group on the selling date. The related expenses are recognized in the financial expenses.

Financial liabilities

Financial liabilities are classified as financial liabilities accounted at fair value through profit or loss, at amortized cost and at fair value through other comprehensive income. Financial liabilities at fair value through profit or loss include derivatives to which hedge accounting is not applied, whereas derivatives which are qualified for hedge accounting are booked at fair value through other comprehensive income.

Other financial liabilities are initially recognized in the balance sheet at the initial value of received net assets deducted with direct costs. Later, these financial liabilities are measured at amortized cost, and the difference between the received net assets and amortizations is recognized as an interest cost over the loan term. Changes in the fair value of loans under fair value hedge accounting are booked in the income statement together with the changes in the fair value of derivatives under fair value hedge accounting.

If the terms of a loan measured at amortized cost are modified and the loan is not derecognized, the gain or loss of the modification is booked in the income statement at the point of modification and amortized over the life of the modified loan. Profit or loss is equal to the difference between the present value of the cash flows under the original and modified terms discounted at the original effective interest rate.

Category	Financial instrument
Financial liabilities at fair value through profit or loss	Currency forward contracts and currency swaps, interest rate swaps, electricity forwards, electricity futures and electricity options
Amortized cost	Current and non-current loans, pension loans, bonds and trade payables
Financial liabilities at fair value through other comprehensive income	Derivatives qualifying for hedge accounting (cashflow hedging)

The following levels are used to measure the fair values:

Level 1:
Fair value is determined based on quoted market prices.

Level 2:
Fair value is determined with valuation techniques. The fair value refers either to the value that is observable from the market value of elements of the financial instrument or the market value of corresponding financial instruments; or to the value that is observable by using commonly accepted valuation models and techniques if the market value can be reliably measured with them.

Level 3:
Fair value is determined by using valuation techniques, which use inputs that have a significant effect on the recorded fair value and the inputs are not based on observable market data. Level 3 mainly includes the shares of Pohjolan Voima Group.

5.5. MANAGEMENT OF FINANCIAL RISKS

Kemira Group Treasury's objective is to ensure sufficient funding in the most cost efficient way, and to manage financial risks. Treasury policy, approved by the Board of Directors, defines treasury management principles. The Board of Directors approves the annual Treasury plan and the maximum permissible financial risk levels.

Financial risk management aims to protect the company from unfavorable changes in financial markets, thereby contributing to safeguarding the company's profit performance and shareholders' equity and to ensure sufficient sources of finance. Management of financial risks is centralized in the Group Treasury, which uses derivative instruments for hedging purposes derivative instruments for which market values and risks can be monitored continuously and reliably.

Foreign exchange risk

Foreign currency transaction risk arises from currency flows, assets and liabilities denominated in currencies other than the domestic currency. Transaction risks arise from cash flows and balance sheet items where changes in exchange rates will have an impact on earnings and cash flows. Translation risk arises when the currency denominated income and balance sheet items of Group companies located outside the euro area are consolidated into EUR. The transaction risk is hedged mainly using foreign currency forwards.

The Group's most significant transaction currency risks arise from the Swedish krona, the Canadian dollar and the U.S. dollar. At the end of the year the denominated exchange rate risk of the Swedish krona against the euro had an equivalent value of approximately EUR 50 million (58), the average hedging rate being 74% (63%). The Canadian dollar's denominated exchange rate risk against U.S. dollar had an equivalent value of approximately EUR 25 million (23), the average hedging rate being 24% (-). The Canadian dollar's denominated exchange rate risk against EUR had an equivalent value of approximately EUR 15 million (36), the average hedging rate being 69% (63%). The U.S. dollar denominated exchange rate risk was approximately EUR 24 million (50), the average hedging rate being 59% (58%). In addition, Kemira is exposed to smaller transaction risks mainly in relation to the Chinese renminbi, the Norwegian krona, the Polish zloty, the Russian rouble and the Brazilian real, with the annual exposure in those currencies being approximately EUR 72 million.

Transaction exposure, the most significant currencies, EUR million	2018 SEK against EUR	2018 CAD against USD	2018 CAD against EUR	2018 USD against EUR	2017 SEK against EUR	2017 CAD against EUR	2017 USD against EUR
Operative cash flow forecast, net [1]	-49.7	25.4	14.7	24.4	-57.6	36.2	30.4
Loans, net	-9.3	-	10.3	327.3	-7.5	2.3	355.7
Derivatives, operative cash flow hedging, net	34.2	-9.6	-9.9	-12.7	41.2	-13.7	-18.8
Derivatives, hedging of loans, net	8.8	-	-10.3	-76.1	8.1	-2.3	-26.6
Total	-16.0	15.8	4.8	262.9	-15.8	22.5	340.7

1) Based on 12-month foreign currency operative cash flow forecast.

At the turn of 2018/2019, the foreign currency operative cash flow forecast for 2019 was EUR 246 million of which 50% was hedged (41%). The hedge ratio is monitored daily. A minimum of 40% and a maximum of 100% of the forecast flow must always be hedged. A 10% fall in foreign exchange rates against the euro, based on the exchange rates as of December 31, 2018, and without hedging, would decrease EBITDA by approximately EUR 1 million.

The most significant translation risk currencies are the U.S. dollar, the Swedish krona, the Canadian dollar, the Chinese renminbi, the Brazilian real and the Polish zloty.

Kemira's main equity items denominated in foreign currencies are in the Canadian Dollar, the Swedish krona and U.S. dollar. The objective is to hedge the balance sheet risk by maintaining a balance between foreign currency denominated liabilities and assets, currency by currency. In hedging the net investment in its units abroad, Kemira monitors the equity ratio. Long-term loans and currency derivatives can be used for hedging net investments in foreign subsidiaries. These hedges do not apply to hedge accounting. To some foreign subsidiaries loans in U.S. dollars have been granted, and currency differences have been included in foreign currency translation differences.

Interest rate risk

Kemira is exposed to interest rate risks when fixing interest rates of floating rate loans and through fair value changes of bonds and derivatives. In accordance with the treasury policy, the Group's interest rate risk is measured with the duration which describes average repricing moment of the loan portfolio. The duration must be in the range of 6–60 months. The Kemira Group Treasury manages duration by borrowing with fixed and floating rate loans in addition to the interest rate derivatives.

The duration of the Group's interest-bearing loan portfolio was 31 months at the end of 2018 (33 months). Excluding the interest rate derivatives, the duration was 29 months (30 months). At the end of 2018, 79% of the Group's entire net debt portfolio, including derivatives, was fixed (75%). The net financing cost of the Group was 3.4% (3.1%). This figure is attained by dividing yearly net interest and other financing expenses, excluding exchange rate differences and dividends by the average interest bearing net debt figure for the corresponding period. The most significant impact on the net financing cost arises from variation in the interest rate levels of the euro, the U.S. dollar and the Chinese renminbi.

The table below shows the time for interest rate fixing of the loan portfolio.

2018 Time to interest rate fixing, EUR million	<1 year	1–5 years	> 5 year	Total
Floating net liabilities	156.4	-	-	156.4
Fixed net liabilities	15.0	280.0	290.0	585.0
Total	171.4	280.0	290.0	741.4

2017 Time to interest rate fixing, EUR million	<1 year	1–5 years	> 5 year	Total
Floating net liabilities	174.4	-	-	174.4
Fixed net liabilities	25.0	295.0	200.0	520.0
Total	199.4	295.0	200.0	694.4

On the balance sheet date, the average interest rate of the loan portfolio excluding interest rate hedges was approximately 1.9% (2.0%). If interest rates had risen by one percentage point on January 1, 2019, the resulting interest expenses before taxes incurred by the Group over the next 12 months would increase by approximately EUR 1.2 million (1.7). During 2019, Kemira will reprice 32% (28%) of the Group's net debt portfolio, including derivatives.

On the balance sheet date, the Group had outstanding interest rate derivatives related to cash flow hedging with a market value of EUR -1.3 million (-1.6) and fair value hedging with a market value of EUR 1.7 million (2.7). All interest rate swaps are used to hedge the Group's loan portfolio, and are accounted for in accordance with the principles of hedge accounting set out in IFRS 9. One percentage point increase in interest rates would positively affect market valuation of interest rate swaps of EUR 0.5 million (0.5) in equity.

Electricity price risk

The price of electricity varies greatly according to the market situation. Kemira Group takes hedging measures with respect to its electricity purchases in order to even out the raw material costs. In line with its hedging policy, the Group hedges its existing sales agreements in such a way that the hedges cover the commitments made. The company primarily uses electricity derivatives on the power exchange as hedging instruments. Currency and regional price risks connected with hedges are hedged by making agreements in Finland, mainly in HELEUR amounts and, in Sweden, mainly in MALSEK amounts. The outstanding electricity derivatives are treated in accordance with cash flow hedge accounting, as discussed above. The forecast for physical deliveries of the underlying assets, or purchases, are not recorded until the delivery period. A +/- 10% change in the market price of electricity hedging contracts would impact the valuation of these contracts EUR +/- 8.3 million (+/- 5.9). This impact would be mainly in equity.

Credit risk

The Group is exposed to credit risks through commercial accounts receivables, as bank account balances, deposits, short-term investments and derivatives.

The Group's treasury policy defines the credit rating requirements for counterparties of investment activities and derivative agreements as well as the related investment policy. The Group seeks to minimize its counterparty risk by dealing solely with counterparties that are financial institutions with a solid credit rating, as well as by decentralizing agreements among them.

The counterparty risk in treasury operations is due to the fact that a contractual party to a financing transaction is not necessarily able to fulfill its contractual obligations. Risks are mainly related to investment activities and the counterparty risks associated with derivative contracts.

The Group Treasury approves the new banking relationships of subsidiaries. Financial institution counterparties, used by the Group Treasury, have a credit rating of at least an investment grade based on Standard & Poor's credit rating information. The maximum risk assignable to the Group's financial institution counterparties on the balance sheet date amounted to EUR 174.4 million (172.2). Kemira monitors its counterparty risk on a monthly basis by defining the maximum risk associated with each counterparty based on the market value of receivables. Kemira has defined an approved limit for each financial institution. Credit risks associated with financing transactions did not result in credit losses during the financial year.

Kemira has a Group wide credit policy related to commercial activities. According to the policy, each customer has a pre-defined risk category and credit limit. These are constantly monitored. Based on the customer evaluation, Kemira decides the applicable payment terms to minimize credit risks. Pre-approved payment terms have been defined on the Group level. If necessary, also securities and documentary credit, like letters of credit, are applied. The Group does not have any significant credit risk concentrations due to its extensive customer base across the world.

In the U.S., Kemira has an accounts receivable purchase facility worth USD 60 million, enabling Group companies in the USA to sell certain account receivables to the counterparty. The credit risk of the accounts receivables is transferred to the financial institutions and 96.2% of the receivables transferred are derecognized from the balance sheet. The amount of outstanding receivables transferred, which also reflects the fair value of the receivables before the transfer was EUR 44.4 million (28.1) on December 31, 2018. The amounts recognized in the balance sheet are EUR 1.7 million (1.8) in assets and EUR 0.8 million (0.5) in liabilities.

Liquidity and refinancing risks

Kemira's liquidity is secured with cash and cash equivalents, account overdrafts and revolving credit facility. At the end of 2018, the Group's cash and cash equivalents stood at EUR 144.9 million (166.1), of which cash in bank accounts accounted for EUR 135.6 million (124.6) and bank deposits EUR 9.3 million (41.6). In addition, the Group has a revolving credit facility of EUR 400 million which will mature on August 29, 2020. At the turn of the year 2018/2019, the revolving credit facility was undrawn. Other committed undrawn loan facilities amounted to EUR 40 million.

The Group has a EUR 600 million domestic commercial paper program enabling it to issue commercial papers with a maximum maturity of one year. At the end of 2018, there were no commercial papers outstanding on the market.

Kemira manages its refinancing risk with a diversified loan portfolio. Long-term financing consists of bonds and bilateral loan agreements with several financial institutions.

According to Group Treasury policy the average maturity of outstanding loans is targeted to be at least 3 years. In addition, the Group must have committed credit facilities to cover planned funding needs, the current portion of long term-debt, commercial paper borrowings, and other uncommitted short-term loans in the next 12 months. The average maturity of debt at the end of 2018 was 3.9 years.

LOAN STRUCTURE DIVIDED BY TYPE AND MATURITY

2018 Loan type, EUR million	Undrawn	2019	2020	2020	2022	2023	2024–	Total drawn
Loans from financial institutions	40.0	10.4	55.4	-	-	150.0	90.0	305.9
Bonds	-	100.0	-	-	150.0	-	200.0	450.0
Revolving credit facility	400.0	-	-	-	-	-	-	0.0
Finance lease liabilities	-	0.0	0.0	-	-	-	-	0.1
Commercial paper program	600.0	-	-	-	-	-	-	0.0
Other interest-bearing non-current liabilities	-	-	1.8	-	-	6.1	-	7.9
Other interest-bearing current liabilities	-	129.5	-	-	-	-	-	129.5
Total interest-bearing liabilities	1,040.0	240.0	57.2	0.0	150.0	156.1	290.0	893.4

2017 Loan type, EUR million	Undrawn	2018	2019	2020	2021	2022	2023-	Total drawn
Loans from financial institutions	-	71.0	11.9	207.3	-	-	-	290.1
Bonds	-	-	100.0	-	-	150.0	200.0	450.0
Revolving credit facility	400.0	-	-	-	-	-	-	0.0
Finance lease liabilities	-	0.0	0.0	-	-	-	-	0.1
Commercial paper program	600.0	-	-	-	-	-	-	0.0
Other interest-bearing current liabilities	-	120.4	-	-	-	-	-	120.4
Total interest-bearing liabilities	1,000.0	191.4	111.9	207.3	0.0	150.0	200.0	860.5

5.6. DERIVATIVE INSTRUMENTS

	Maturity structure							
Nominal values, EUR million	2019	2020	2021	2022	2023	2024–	2018 Total	2017 Total
Currency derivatives								
Forward contracts	358.1	-	-	-	-	-	358.1	341.4
Inflow	224.8	-	-	-	-	-	224.8	166.8
of which cash flow hedges	11.3	-	-	-	-	-	11.3	43.5
Outflow	133.3	-	-	-	-	-	133.3	174.7
of which cash flow hedges	6.8	-	-	-	-	-	6.8	-
Interest rate derivatives								
Interest rate swaps	115.0	130.0	-	-	-	-	245.0	270.0
of which cash flow hedges	15.0	130.0	-	-	-	-	145.0	170.0
of which fair value hedges	100.0	-	-	-	-	-	100.0	100.0
Other derivatives								
Electricity contracts, bought (GWh)	1,049.9	632.4	403.0	175.2	17.5	-	2,278.0	1,862.1
Electricity forward contracts	1,049.9	632.4	403.0	175.2	17.5	-	2,278.0	1,704.5
of which cash flow hedges	1,049.9	632.4	403.0	175.2	17.5	-	2,278.0	1,704.5
Electricity future contracts	-	-	-	-	-	-	0.0	157.6
of which cash flow hedges	-	-	-	-	-	-	0.0	157.6

Nominal values of the financial instruments do not necessarily correspond to the actual cash flows between the counterparties, and therefore individual items do not give a fair view of the Group's risk position.

	2018			2017		
Fair values, EUR million	Positive	Negative	Net	Positive	Negative	Net
Currency derivatives						
Forward contracts	2.3	-2.2	0.2	4.7	-3.7	1.0
of which cash flow hedges	0.2	-	0.2	0.8	-	0.8
Interest rate derivatives						
Interest rate swaps	1.7	-1.3	0.4	2.7	-1.6	1.1
of which cash flow hedges	-	-1.3	-1.3	-	-1.6	-1.6
of which fair value hedges	1.7	-	1.7	2.7	-	2.7
Other derivatives						
Electricity forward contracts, bought	27.6	-	27.6	6.2	-	6.2
of which cash flow hedges	27.6	-	27.6	6.2	-	6.2
Electricity future contracts, bought	-	-	-	-	-0.1	-0.1
of which cash flow hedges	-	-	-	-	-0.1	-0.1

The Group's accounting policies

Derivatives

The fair values of currency, interest rate and commodity derivatives, as well as publicly traded shares are based on prices quoted in active markets on the balance sheet date. The value of other financial instruments measured at fair value is determined on the basis of valuation models using information available in the financial market.

All of the derivatives are measured at their fair values on the balance sheet date. Changes in the value of forward contracts are calculated by measuring the contracts against the forward exchange rates on the balance sheet date and comparing them with the counter values calculated through the forward exchange rates on the date of entry into the forward contracts. The fair value of interest rate derivatives is determined using the market value of similar instruments on the balance sheet date. Other derivatives are measured at the market price on the balance sheet date.

Derivative assets are presented in the balance sheet as part of line item Trade receivables and other receivables. Derivative liabilities are presented in the balance sheet as part of line item Trade payables and other liabilities.

Hedge accounting

Hedge accounting is applied according to IFRS 9. This refers to a method of accounting aimed at allocating one or more hedging instruments in such a way that their fair value offsets, in full or in part, the changes in the fair value or cash flows of the hedged item. Hedged items must be highly probable. Hedge accounting is applied to hedging interest rate risk, currency risk, commodity risk and fair value. Part of currency forwards and all interest rate swaps, electricity forwards as well as electricity futures come under hedge accounting treatment.

Hedge effectiveness is monitored as required by IFRS 9. Effectiveness refers to the capacity of a hedging instrument to offset changes in the fair value of the hedged item or cash flows from a hedged transaction, which are due to the realization of the risk being hedged. A hedging relationship is considered to be highly effective when the change in the fair value of the hedging instrument offsets changes in the cash flows attributable to the hedged items. Hedge effectiveness is assessed prospectively. Hedge effectiveness testing is repeated on each balance sheet date.

Hedge accounting is discontinued when the criteria for hedge accounting are no longer fulfilled. Gains or losses recognized in other comprehensive income and presented under equity are derecognized and transferred immediately in the income statement, if the hedged item is sold or falls due. However, gains or losses arising from changes in the fair value of those derivatives not fulfilling the hedge accounting criteria are recognized directly in the income statement.

At the inception of a hedge, the Group documents the existence of the economic relationship of the hedged item and hedging instrument, including the identification of the hedging instrument, the hedged item or transaction, the nature of the risk being hedged, the objectives of risk management and the strategy for undertaking hedging, as well as the description of how the hedge effectiveness is assessed.

Cash flow hedging

Cash flow hedging is used to hedge against variability in cash flows attributable to a particular risk associated with a recognized asset or liability in the balance sheet or a highly probable forecast transaction. Currency, interest rate and commodity derivatives are used as hedging instruments in cash flow hedging. Cash flow hedge accounting, specified in IFRS 9, is applied by the Group to only selected hedging items. Changes in the fair value of derivative instruments associated with cash flow hedge are recognized in other comprehensive income (including the tax effect) and presented under equity, providing that they fulfill the criteria set for hedge accounting and are based on effective hedging. The ineffective portion of the gain or loss on the hedging instrument is recognized under financial items in the income statement. Derivatives not fulfilling the hedge accounting criteria are recognized in financial items through profit or loss.

Fair value hedging

Fair value hedges are related to a fixed rate bond loan. Interest rate derivatives are used as instruments in fair value hedging. Change in fair value of the hedging derivative contracts are recognized in the income statement and the hedged item's book value is adjusted through profit or loss to the extent that the hedge is effective.

6. GROUP STRUCTURE

6.1. RELATED PARTIES

Parties are considered to be related if one party has the ability to control the other party or exercise significant influence, or if the parties exercise joint control in making financial and operating decisions. The Group's related parties include the parent company, subsidiaries, associates, joint-ventures and the Pension Fund Neliapila. Related parties also include the members of the Board of Directors and the Group's Management Boards, the CEO and his Deputy, and their immediate family members.

EMPLOYEE BENEFITS OF CEO, DEPUTY CEO AND MEMBERS OF MANAGEMENT BOARD

	Salaries and other benefits, EUR	Bonuses, EUR	Share-based payments, EUR [1]	2018 Total, EUR	2017 Total, EUR
CEO Jari Rosendal	567,000	109,080	345,440	1,021,520	891,000
Deputy CEO Jukka Hakkila [2]	181,702	27,334	120,904	329,940	268,155
Other members of Management Board [3]	1,766,416	265,561	803,147	2,835,124	2,796,597
Total	2,515,118	401,975	1,269,491	4,186,584	3,955,752

1) Share-based incentive plans for the management and key personnel are disclosed in Note 2.3. Share-based payments.
2) Jukka Hakkila is not a member of the Management Board.
3) Members of the Management Board who are employed by a Finnish Kemira company do not have any supplementary pension arrangements in addition to the statutory pensions. The members of the Management Board who are employed by a foreign Kemira company participate in the pension systems based on statutory pension arrangements and market practices in their local countries. The Kemira policy is that all new supplementary pension arrangements are defined contribution plans.

Employment terms and conditions of the CEO

Remuneration of the CEO comprises a monthly salary including a car benefit and a mobile phone benefit, and performance-based incentives. The performance-based incentives consist of an annual short-term bonus plan and a long-term share incentive plan. The annual short-term bonus plan is based on terms approved by the Board of Directors and the maximum bonus is 70% of the annual base salary. The long-term share incentive plan is based on the terms of the plan. The maximum reward is determined as a number of shares and a cash portion intended to cover taxes and the tax-related costs arising from the reward.

The CEO belongs to the Finnish Employees' Pension Act (TyEL) scheme, which provides pension security based on the years of service and earnings as stipulated by law. The CEO's retirement age is determined by TyEL. The CEO does not have a separate supplementary pension arrangement.

A mutual termination notice period of six months applies to the CEO. The CEO is entitled to an additional severance pay of 12 months' salary, in case the company will terminate his service.

The board of directors' emoluments

On March 21, 2018, the Annual General Meeting decided that the Board of Directors' annual fee shall be paid as a combination of the company's shares and cash in such a manner that 40% of the annual fee is paid with the Kemira shares owned by the company or, if this is not possible, then with Kemira shares acquired from the securities market, and 60% is paid in cash. In May 2018, the 10,710 shares owned by the company were distributed to the members of the Board of Directors.

There are no special terms or conditions associated with owning the shares received as the annual fee. The members of the Board of Directors are not eligible for any short-term bonus plans, long-term share incentive plans or supplementary pension plans of Kemira Oyj.

The meeting fees are paid in cash and travel expenses are paid according to Kemira's travel policy.

MEMBERS OF THE BOARD OF DIRECTORS

	Number of shares	Share value, EUR	Cash compensation, EUR [4]	2018 Total, EUR	2017 Total, EUR
Jari Paasikivi, Chairman	2,904	31,956	59,533	91,489	90,885
Kerttu Tuomas, Vice Chairman	1,779	19,576	37,511	57,087	57,085
Wolfgang Büchele	1,416	15,582	32,769	48,351	49,549
Winnie Fok (until March 24, 2017)	-	-	-	-	4,800
Shirley Cunningham (since March 24, 2017)	1,416	15,582	42,369	57,951	57,949
Juha Laaksonen (until March 24, 2017)	-	-	-	-	2,400
Timo Lappalainen	1,779	19,576	41,111	60,687	59,485
Kaisa Hietala	1,416	15,582	31,569	47,151	47,749
Total	10,710	118,453	244,862	362,716	369,902

4) Includes the annual fees and the meeting fees.

TRANSACTIONS CARRIED OUT WITH RELATED PARTIES

EUR million	2018	2017
Revenue		
Associated companies	1.4	1.7
Purchases		
Associated companies	0.0	3.3
Pension Fund Neliapila	1.2	1.2
Total	1.2	4.5
Receivables		
Associated companies	0.1	0.2
Liabilities		
Associated companies	-	0.3

The amount of contingent liabilities on behalf of the associates are presented in Note 7.1. Commitments and contingent liabilities.

Related parties include Pension Fund Neliapila, which is a separate legal entity. Pension Fund Neliapila manages Kemira's voluntarily organized additional pension fund. Pension Fund Neliapila manages part of the pension assets of the Group's personnel in Finland. The assets include Kemira shares representing 0.07% of the company's outstanding shares. Supplementary benefit in Pension Fund Neliapila and the surplus return during 2019 are disclosed in more detail in Note 4.5. Defined benefit pension plans and employee benefits.

No loans had been granted to the key persons of the management at year-end of 2017 and 2018, nor were there contingency items or commitments on behalf of key management personnel. Persons close to key management personnel with the related parties do not have any significant business relationship with the Group.

6.2. THE GROUP'S SUBSIDIARIES AND INVESTMENT IN ASSOCIATES

SUBSIDIARIES

	City	Country	Kemira Group's holding, %	Kemira Oyj's holding, %	Non-controlling interest's holding, %
Kemira Oyj (parent company)	Helsinki	Finland			
Aliada Quimica de Portugal Lda.	Estarreja	Portugal	50.1		49.9
AS Kemivesi	Lehmja Küla	Estonia	100.0	100.0	
JSC "Kemira HIM"	St. Petersburg	Russia	100.0		
Corporación Kemira Chemicals de Venezuela, C.A.	Caracas	Venezuela	100.0		
Industry Park i Helsingborg Förvaltning AB	Helsingborg	Sweden	100.0		
Kemifloc a.s.	Přerov	Czech Republic	51.0		49.0
Kemifloc Slovakia s.r.o.	Prešov	Slovakia	51.0		49.0
Kemipol Sp. z.o.o.	Police	Poland	51.0		49.0
Kemira (Asia) Co., Ltd.	Shanghai	China	100.0		
Kemira Argentina S.A.	Buenos Aires	Argentina	100.0	15.8	
Kemira Australia Pty Ltd	Hallam	Australia	100.0		
Kemira Cell Sp. z.o.o.	Ostroleka	Poland	55.0	55.0	45.0
Kemira Chemicals (Nanjing) Co., Ltd.	Nanjing	China	100.0	100.0	
Kemira Chemicals (Shanghai) Co., Ltd.	Shanghai	China	100.0	100.0	
Kemira Chemicals (UK) Ltd.	Bradford	United Kingdom	100.0	100.0	
Kemira Chemicals (Yanzhou) Co., Ltd.	Yanzhou City	China	100.0	100.0	
Kemira Chemicals AS	Gamle Fredrikstad	Norway	100.0		
Kemira Chemicals Brasil Ltda.	São Paulo	Brazil	100.0	99.9	
Kemira Chemicals Canada Inc.	St. Catharines	Canada	100.0	100.0	
Kemira Chemicals Germany GmbH	Frankfurt am Main	Germany	100.0		

	City	Country	Kemira Group's holding, %	Kemira Oyj's holding, %	Non-controlling interest's holding, %
Kemira Chemicals Korea Corporation	Gunsan-City	South Korea	100.0	100.0	
Kemira Chemicals NV	Aartselaar	Belgium	100.0		
Kemira Chemicals Oy	Helsinki	Finland	100.0		
Kemira Chemicals, Inc.	Atlanta, GA	United States	100.0		
Kemira Chemie Ges.mbH	Krems	Austria	100.0	100.0	
Kemira Chile Comercial Limitada	Santiago	Chile	100.0	99.0	
Kemira Chimie S.A.S.U.	Strasbourg	France	100.0		
Kemira Europe Oy	Helsinki	Finland	100.0	100.0	
Kemira Gdańsk Sp. z o.o.	Gdańsk	Poland	100.0		
Kemira Germany GmbH	Frankfurt am Main	Germany	100.0	100.0	
Kemira GrowHow A/S	Copenhagen	Denmark	100.0	100.0	
Kemira Hong Kong Company Limited	Hong Kong	China	100.0	100.0	
Kemira Ibérica S.A.	Barcelona	Spain	100.0		
Kemira International Finance B.V.	Rotterdam	Netherlands	100.0	100.0	
Kemira Italy S.p.A.	San Giorgio di Nogaro	Italy	100.0		
Kemira Japan Co., Ltd.	Tokyo	Japan	100.0		
Kemira Kemi AB	Helsingborg	Sweden	100.0		
Kemira Kopparverket KB	Helsingborg	Sweden	100.0		
Kemira KTM d.o.o.	Ljubljana	Slovenia	100.0	100.0	
Kemira Operon Oy	Helsinki	Finland	100.0	100.0	
Kemira Research Center Shanghai Co., Ltd.	Shanghai	China	100.0	100.0	

	City	Country	Kemira Group's holding, %	Kemira Oyj's holding, %	Non-controlling interest's holding, %
Kemira Rotterdam B.V.	Rotterdam	Netherlands	100.0		
Kemira South Africa (Pty) Ltd.	Weltevredenpark	South Africa	100.0		
Kemira Świecie Sp. z.o.o.	Swiecie	Poland	100.0	100.0	
Kemira Taiwan Corporation	Taipei	Taiwan	100.0		
Kemira TC Wanfeng Chemicals (Yanzhou) Co., Ltd.	Yanzhou City	China	80.0		20.0
Kemira (Thailand) Co., Ltd.	Bangkok	Thailand	100.0		
Kemira Uruguay S.A.	Fray Bentos	Uruguay	100.0		
Kemira (Vietnam) Company Limited	Long Thanh	Vietnam	100.0		
Kemira Water Danmark A/S	Copenhagen	Denmark	100.0	100.0	
Kemira Water Solutions Brasil - Produtos para Tratamento de Água Ltda.	São Paulo	Brazil	100.0	100.0	
Kemira Water Solutions Canada Inc.	Varennes	Canada	100.0		
Kemira Water Solutions, Inc.	Atlanta, GA	United States	100.0		
Kemwater Brasil Ltda.	Camaçari	Brazil	100.0		
Kemwater ProChemie s.r.o.	Bradlec	Czech Republic	95.1		4.9
PT Kemira Indonesia	Surabaya	Indonesia	100.0	74.8	
PT Kemira Chemicals Indonesia	Pasuruan	Indonesia	99.8	99.8	0.2
Scandinavian Tanking System A/S	Copenhagen	Denmark	100.0		

ASSOCIATES

	City	Country	Kemira Group's holding, %	Kemira Oyj's holding, %
Haapaveden Ympäristöpalvelut Oy	Haapavesi	Finland	40.5	-
Honkalahden Teollisuuslaituri Oy	Lappeenranta	Finland	50.0	-

INVESTMENTS IN ASSOCIATES

EUR million	2018	2017
Net book value at 1 Jan	0.7	1.2
Dividends received	0.0	-0.1
Share of the results of associates	0.0	0.1
Transferred to non-current assets classified as held-for-sale [1)]	-	-0.6
Net book value at 31 Dec	0.7	0.7

1) In the financial statements for 2017 the shares of FC Energia Oy and FC Power Oy were transferred to non-current assets classified as held-for-sale. Kemira Chemicals Oy and Leppäkosken Sähkö Oy signed a contract on January 10, 2018, with Adven Oy for the sale of the shares for FC Energia Oy and FC Power Oy. The deal was conditional and the timing was uncertain. FC Energia Oy and FC Power Oy were energy production companies that have been co-owned by Kemira (34% of shares) and Leppäkosken Sähkö (66% of shares). The share deal of FC Energia Oy and FC Power Oy fulfilled in Q1/2018.

A summary of the associates financial information is presented in the following table. The presented figures equal the figures in the financial statements of each associate, not the portion of Kemira Group. In 2017, figures also include FC Energia Oy and FC Power Oy transferred to assets classified as held-for-sale.

EUR million	2018	2017
Assets	9.8	18.1
Liabilities	9.7	15.6
Revenue	2.8	6.7
Profit (+) / loss (-) for the period	0.0	0.5

Related party transactions carried out with associates are disclosed in Note 6.1. Related parties.

NON-CONTROLLING INTERESTS

EUR million	2018	2017
Net book value at 1 Jan	13.8	12.9
Dividends	-6.5	-6.2
Share of the profit for the period	6.1	6.6
Exchange rate differences	-0.4	0.5
Net book value at 31 Dec	12.9	13.8

Changes in the group structure

New subsidiaries established

- Kemira established a new company, Kemira Research Center Shanghai Co., Ltd., in China on September 21, 2018.

Divestments of group companies

- ZAO Avers was sold on May 25, 2018.

Changes in the holdings of group companies within the Group

- Kemira Nederland Holding B.V. merged with and into Kemira International Finance B.V. on January 1, 2018.
- Kemira Finance Solutions B.V. merged with and into Kemira International Finance B.V. on January 1, 2018.

The Group's accounting policies

Non-current assets held for sale

Non-current assets are classified as assets held for sale when their carrying amount is to be recovered principally through a sale transaction and a sale transaction and a sale is considered highly probable. Since the time of classification, the assets are valued at the lower of carrying amount and fair value less costs to sell. Non-current assets classified as held for sale are disclosed separately in the balance sheet.

7. OFF-BALANCE SHEET ITEMS

7.1. COMMITMENTS AND CONTINGENT LIABILITIES

COMMITMENTS

EUR million	2018	2017
Assets pledged		
On behalf of own commitments	5.5	5.7
Guarantees		
On behalf of own commitments	54.7	50.2
On behalf of others	2.8	3.9
Operating lease commitments - the Group as lessee		
Minimum lease payments under operating leases are as follows:		
No later than 1 year	34.7	32.2
Later than 1 year and no later than 5 years	82.5	84.5
Later than 5 years	87.9	80.9
Total	205.2	197.6
Other obligations		
On behalf of own commitments	0.9	1.0
On behalf of others	6.1	-
On behalf of associates	-	0.2

The most significant off-balance sheet investments commitments

On December 31, 2018, major amounts of contractual commitments for the acquisition of property, plant and equipment were about EUR 16.4 million (18.7) for plant investments.

Litigation

On May 19, 2014, Kemira announced that it had signed an agreement with Cartel Damage Claims Hydrogen Peroxide SA and CDC Holding SA (together "CDC") to settle the lawsuit in Helsinki, Finland, relating to alleged old violations of competition law applicable to the hydrogen peroxide business. Based on the settlement CDC withdrew the damages claims and Kemira paid to CDC a compensation of EUR 18.5 million and compensated CDC for its legal costs. The settlement also included significant limitations of liabilities for Kemira regarding the then pending legal actions filed by CDC entities in Dortmund, Germany (mentioned and settled as below), and in Amsterdam, the Netherlands (mentioned and pending as below).

On October 16, 2017, Kemira entered into a settlement with Cartel Damage Claims Hydrogen Peroxide SA settling – for its part – fully and finally the Dortmund lawsuit filed by Cartel Damage Claims Hydrogen Peroxide SA in 2009 against six hydrogen peroxide manufacturers, including Kemira, for alleged old violations of competition law in the hydrogen peroxide business. Based on the settlement Cartel Damage Claims Hydrogen Peroxide SA withdrew the damages claims against Kemira and Kemira paid to Cartel Damage Claims Hydrogen Peroxide SA as compensation and costs an amount of EUR 12.7 million.

On June 9, 2011, Kemira Oyj's subsidiary Kemira Chemicals Oy (former Finnish Chemicals Oy) has received documents where it was stated that CDC Project 13 SA has filed an action against four companies in municipal court of Amsterdam, including Kemira, asking damages for violations of competition law applicable to the old sodium chlorate business. The European Commission set on June 2008 a fine of EUR 10.15 million on Finnish Chemicals Oy for antitrust activity in the company's sodium chlorate business during 1994–2000. Kemira Oyj acquired Finnish Chemicals in 2005. The municipal court of Amsterdam decided on June 4, 2014, to have jurisdiction over the case. The said decision on jurisdiction was appealed by Kemira to the court of appeal of Amsterdam. According to the decision by the court of appeal on July 21, 2015, the municipal court of Amsterdam has jurisdiction over the case. The proceedings now continue at the municipal court of Amsterdam where Kemira is the only defendant after the other defendants have settled the claim with CDC Project 13 SA. CDC Project 13 SA claims from Kemira in its brief filed to the municipal court of Amsterdam EUR 61.1 million as damages and interests calculated until December 2, 2015, from which amount CDC Project 13 SA asks the court to deduct the share of the earlier other defendants for other sales than made by them directly, and statutory interest on so defined amount starting from December 2, 2015. Kemira defends against the claim of CDC Project 13 SA. On May 10, 2017, the municipal court of Amsterdam rendered an interim decision on certain legal aspects relating to the claims of CDC Project 13 SA. The interim decision was favorable to Kemira on matters as to applicable statute of limitations, though not supporting Kemira's view that assignments made to CDC (allegedly giving CDC rights to present damage claims against the defendants) were invalid. CDC Project 13 SA has appealed against said interim decision and likewise Kemira has decided to file a cross-appeal accordingly.

As mentioned above the settlement between Kemira and CDC relating to the Helsinki litigation also includes significant limitations of liabilities for Kemira regarding the remaining pending legal action filed by CDC Project 13 SA in Amsterdam, the Netherlands. However, regardless of such limitations of liabilities, Kemira is currently not in a position to make any estimate regarding the duration or the likely outcome of the said process. No assurance can be given as to the outcome of the process, and unfavorable judgments against Kemira could have an adverse effect on Kemira's business, financial condition or results of operations. Due to its extensive international operations, the Group, in addition to the above referred claims, is involved in a number of other legal proceedings incidental to these operations and it does not expect the outcome of these other currently pending legal proceedings to have a materially adverse effect upon its consolidated results or financial position.

The Group's accounting policies

Contingent liabilities

A contingent liability is a possible obligation that arises from past events and whose existence will be confirmed by the occurrence of uncertain future events not wholly within the control of the Group, or concerns a present obligation which will most probably not require an outflow of resources embodying economic benefits to settle the obligation; or when the amount of the obligation cannot be measured with sufficient reliability. Contingent liability is disclosed in the notes.

7.2. EVENTS AFTER THE BALANCE SHEET DATE

January 14, 2019 Kemira signed an agreement to establish a joint venture – Kemira Yongsan Chemicals Co., Ltd, with Yongsan Chemicals, a privately-owned chemicals company in South Korea. Kemira will make a several million investment in the joint venture and will have 35% minority share of the established company.

The Group has no other significant events after the balance sheet date.

Kemira Oyj income statement

		Year ended 31 December	
EUR million	Note	2018	2017
Revenue	2	1,489.7	1,397.2
Change in inventories of finished goods	4	22.0	-0.6
Other operating income	3	7.8	7.8
Materials and services	4	-1,036.0	-898.0
Personnel expenses	5	-45.4	-45.1
Depreciation, amortization and impairments	6	-29.7	-37.3
Other operating expenses	4	-389.0	-379.2
Operating profit/loss		19.4	44.8
Financial income and expenses	7	119.6	4.6
Profit/loss before appropriations and taxes		139.1	49.3
Appropriations	8	-8.3	-2.9
Income taxes	9	1.7	-5.1
Net profit for the period		132.5	41.3

Kemira Oyj balance sheet

		As at 31 December	
EUR million	Note	2018	2017
ASSETS			
NON-CURRENT ASSETS			
Intangible assets	10	60.7	66.2
Property, plant and equipment	11	35.3	33.3
Investments	12		
Shares in subsidiaries		2,093.0	2,123.9
Receivables from Group companies		445.7	289.5
Other shares and holdings		100.4	121.9
Total investments		2,639.2	2,535.3
Total non-current assets		2,735.2	2,634.8

		As at 31 December	
EUR million	Note	2018	2017
CURRENT ASSETS			
Inventories	13	124.2	89.0
Non-current receivables	14	4.5	4.8
Current receivables	14	457.5	372.5
Money-market investments	15	0.0	25.0
Cash and cash equivalents		97.1	92.1
Total current assets		683.4	583.3
Total assets		3,418.5	3,218.2
EQUITY AND LIABILITIES			
EQUITY	16		
Share capital		221.8	221.8
Share premium		257.9	257.9
Fair value reserve		19.7	4.4
Unrestricted equity reserve		200.0	200.0
Retained earnings		502.9	541.3
Net profit/ loss for the financial year		132.5	41.3
Total equity		1,334.7	1,266.6
Appropriations	17	5.2	5.8
Obligatory provisions	18	20.1	22.2
LIABILITIES			
Non-current liabilities	19	666.9	687.9
Current liabilities	20	1,391.7	1,235.6
Total liabilities		2,058.6	1,923.5
Total equity and liabilities		3,418.5	3,218.2

Kemira Oyj cash flow statement

EUR million	2018	2017
CASH FLOW FROM OPERATING ACTIVITIES		
Net profit for the period	132.5	41.3
Adjustments for		
Depreciation, amortization and impairments	29.7	37.3
Income taxes	-1.7	5.1
Finance expenses, net	-119.6	-4.6
Other non-cash income and expenses not involving cash flow	84.4	-13.8
Operating profit before change in net working capital	125.2	65.4
Change in net working capital		
Increase (-) / decrease (+) in inventories	-35.3	-5.6
Increase (-) / decrease (+) in trade and other receivables	-71.4	-80.6
Increase (+) / decrease (-) in trade payables and other liabilities	6.1	20.6
Change in net working capital	-100.6	-65.6
Cash generated from operations before financing items and taxes	24.6	-0.2
Interest and other finance cost paid	-73.7	-41.4
Interest and other finance income received	2.6	18.1
Realized exchange gains and losses	-1.3	14.2
Dividends received	167.3	38.2
Income taxes paid	1.2	-8.8
Net cash generated from operating activities	120.7	20.0

EUR million	2018	2017
CASH FLOW FROM INVESTING ACTIVITIES		
Acquisitions of subsidiaries and increases in subsidiary shares	-0.2	-33.4
Acquisitions of associated companies and other shares	0.0	-3.6
Purchases of intangible assets	-15.2	-13.3
Purchases of property, plant and equipment	-11.0	-10.2
Proceeds from sale of subsidiaries and other shares	0.0	0.2
Proceeds from sale of property, plant and equipment and intangible assets	0.1	0.0
Change in loan receivables, net increase (-) / decrease (+)	-156.0	16.6
Net cash used in investing activities	-182.3	-43.7
Cash flow before financing	-61.6	-23.7
CASH FLOW FROM FINANCING ACTIVITIES		
Proceeds from non-current interest-bearing liabilities (+)	90.0	200.0
Repayment from non-current interest-bearing liabilities (-)	-111.0	-122.9
Short-term financing, net increase (+) / decrease (-)	144.3	14.3
Dividends paid	-80.8	-80.7
Net cash used in financing activities	42.5	10.6
Net increase (+) / decrease (-) in cash and cash equivalents	-19.1	-13.0
Cash and cash equivalents at 31 Dec	97.1	117.1
Exchange gains (+) / losses (-) on cash and cash equivalents	-0.8	2.3
Cash and cash equivalents at 1 Jan	117.1	127.8
Net increase (+) / decrease (-) in cash and cash equivalents	-19.1	-13.0

1. THE PARENT COMPANY'S ACCOUNTING POLICIES FOR THE FINANCIAL STATEMENTS

BASIS OF PREPARATION

The parent company's financial statements have been prepared in compliance with the relevant acts and regulations in force in Finland (FAS). Kemira Group's financial statements have been prepared in accordance with the International Financial Reporting Standards (IFRS), and the parent company applies the Group's accounting policies whenever it has been possible according to FAS. The accounting policies that differ from the Group's accounting policies are presented below. In other respects the Group's accounting policies are applied.

REVENUE

Kemira Oyj's revenue consists of mainly revenues from the sale of goods and services. Revenue also includes also intercompany service charges due to change in definition of Accounting Act effective 2016.

OTHER OPERATING INCOME

The insurance compensation received has been included in other operating income.

PENSION ARRANGEMENTS

The company's statutory pensions are handled by pension insurance companies and supplemental pensions mainly by Kemira's own pension fund. Pension costs consist of payments to pension insurance companies and possible contributions to the pension fund and are recognized in the income statement.

SHARE-BASED INCENTIVE PLANS

The treatment of share-based plans is described in the Group's accounting policies. In the parent company, the cash proportion of share-based incentive plans is recognized as an expense in the performance year, and the share proportion is recognized in the year the shares are given using the average share price.

INCOME TAXES

The Group's accounting policies are applied to income taxes and deferred tax assets and liabilities as permitted under Finnish GAAP. Deferred tax liability for the appropriations is stated in the notes to financial statements.

LEASE

Lease payments are treated as rental expenses.

FINANCIAL ASSETS, FINANCIAL LIABILITIES AND DERIVATIVE CONTRACTS

Reductions in the capital of other non-current loans as well as loan transaction costs have been capitalized in a manner allowed by the Finnish Accounting Act. The non-expensed portion of these expenses, EUR 1.8 million (EUR 2.6 million), is included in Accrued income from others in the balance sheet.

All financial assets (including shares) and liabilities are recognized at their acquisition value or their acquisition value less write-downs, with the exception of derivative instruments, which are measured at their fair value.

Changes in the value of the financial assets and liabilities, including derivatives, are booked as a credit or charge into income statement under financial income and expenses, with the exception of derivative instruments qualifying for the hedge accounting. When qualifying for hedge accounting the efficient part is booked as a fair value reserve and the inefficient part is booked as a profit or loss in the income statement.

The valuation methods of derivative instruments are described in the Group's accounting policies and in Note 5.6 in the Consolidated Financial Statements.

CASH FLOW STATEMENT

The parent company's cash flow statement has been prepared in accordance with the general guidelines on cash flow by the Finnish Board of Accounting.

2. REVENUE

EUR million	2018	2017
Revenue by segments		
Pulp & Paper	797.8	742.9
Industry & Water	429.1	400.5
Intercompany revenue	262.9	253.8
Total	1,489.7	1,397.2
Distribution of revenue by geographical area as a percentage of total revenue		
Finland, domicile of the parent company	30	28
Other Europe, Middle East and Africa	57	59
Americas	8	7
Asia Pacific	5	6
Total	100	100

3. OTHER OPERATING INCOME

EUR million	2018	2017
Gains on the sale of property, plant and equipment	0.0	0.1
Rent income	0.8	0.7
Insurance compensation received	4.6	5.6
Other income from operations	2.3	1.4
Total	7.8	7.8

4. OPERATING EXPENSES

EUR million	2018	2017
Change in inventories of finished goods	-22.0	0.6
Materials and services		
Materials and supplies		
Purchases during the financial year	1,024.5	891.6
Change in inventories of materials and supplies	-2.5	-6.8
External services	14.0	13.3
Total materials and services	1,036.0	898.0
Personnel expenses	45.4	45.1
Other operating expenses		
Rents	8.4	7.0
Intercompany tolling manufacturing charges	196.7	189.1
Other intercompany charges	131.0	117.1
Other expenses	52.9	66.0
Total other operating expenses	389.0	379.2
Total operating expenses	1,448.4	1,322.9

In 2018, the operating expenses included a net decrease in the obligatory provisions of EUR -2.1 million (personnel expenses EUR -0.1 million, rents EUR -3.5 million and other expenses EUR +1.6 million), and in 2017, the operating expenses included a net increase in the obligatory provisions of EUR +0.7 million (personnel expenses EUR -0.5 million, rents EUR +0.0 million and other expenses EUR +1.2 million).

DELOITTE NETWORK'S FEES AND SERVICES

EUR million	2018	2017
Audit fees	0.4	0.5
Tax services	0.2	0.1
Other services [1]	0.6	0.6

1) In 2018, other services included fees mainly related to internal rationalization projects, similarly as in 2017.

5. PERSONNEL EXPENSES AND NUMBER OF PERSONNEL

EUR million	2018	2017
Emoluments of the Board of Directors, the CEOs and his Deputy [1]	1.7	1.5
Other wages and salaries	36.1	35.7
Pension expenses	6.6	6.7
Other personnel expenses	1.0	1.2
Total	45.4	45.1

1) The emolument of the Kemira Oyj's CEO was EUR 1,021,520 (891,000) including bonuses and share-based payments of EUR 454,520 (324,000). The emolument of the Kemira Oyj's Deputy CEO was EUR 329,940 (268,155) including bonuses and share-based payments of EUR 148,238 (86,502).

Other transactions between related parties are presented in Note 6.1 in the Notes to the Consolidated Financial Statements.

Personnel at 31 Dec	2018	2017
Pulp & Paper	108	107
Industry & Water	36	35
Other, of which	365	356
R&D and Technology	167	167
Total	509	498
Personnel, average	507	499

6. DEPRECIATION, AMORTIZATION AND IMPAIRMENTS

EUR million	2018	2017
Depreciation according to plan and impairments		
Intangible assets		
Intangible rights	14.2	12.7
Other intangible assets	6.5	17.4
Tangible assets		
Buildings and constructions	0.5	0.4
Machinery and equipment	8.5	6.8
Other property, plant and equipment	0.0	0.0
Total	29.7	37.3

7. FINANCE INCOME AND EXPENSES

EUR million	2018	2017
Dividend income		
From the Group companies	167.2	37.3
From others	0.1	0.8
Total	167.3	38.2
Interest income		
From the Group companies	16.6	13.8
From others	1.7	2.6
Total	18.3	16.3

EUR million	2018	2017
Interest expenses		
To the Group companies	-1.3	-0.9
To others	-19.6	-17.3
Total	-20.9	-18.2
Other finance income		
From the Group companies	0.6	0.4
From others	0.0	0.2
Total	0.6	0.6
Other finance expenses		
To the Group companies [1]	-28.2	-13.0
To others [2]	-24.9	-7.3
Total	-53.1	-20.3
Exchange gains and losses		
From the Group companies	9.9	-30.2
From others	-2.4	18.1
Total	7.5	-12.1
Total finance income and expenses	119.6	4.6
Exchange gains and losses		
Realized	-1.3	14.2
Unrealized	8.8	-26.3
Total	7.5	-12.1

1) In 2018, other finance expenses to the Group companies included the impairment of subsidiary shares of EUR 28.2 million (13.0).

2) In 2018, other finance expenses to others included the impairment of other shares of EUR 21.5 million. In 2017, other finance expenses to others included one-time set-up and issuance costs of EUR 5.0 million of a bond issued in 2017.

8. APPROPRIATIONS

EUR million	2018	2017
Change in difference between planned and actual depreciation (– increase/ + decrease)		
Intangible rights	-0.7	0.0
Other intangible assets	0.6	-0.2
Buildings and constructions	0.1	0.0
Machinery and equipment	0.6	1.2
Other property, plant and equipment	0.0	0.0
Total	0.7	1.1
Group contribution		
Group contributions given	-9.0	-4.0
Total	-9.0	-4.0
Total appropriations	-8.3	-2.9

9. INCOME TAXES

(income +, expense –) EUR million	2018	2017
Income taxes, current year	-0.4	0.0
Income taxes, previous years	0.0	-1.9
Deferred taxes	3.5	-3.4
Other taxes	-1.4	0.2
Total	1.7	-5.1

10. INTANGIBLE ASSETS

2018, EUR million	Intangible rights	Goodwill	Prepayments and non-current assets under constructions	Other intangible assets	Total
Acquisition cost at 1 Jan	93.3	6.2	10.0	187.0	296.5
Additions	6.1		1.7	6.8	14.7
Decreases	-6.1			-3.8	-9.9
Transfers	4.0		-8.6	5.1	0.5
Acquisition cost at 31 Dec	97.3	6.2	3.1	195.1	301.7
Accumulated amortization at 1 Jan	-50.2	-6.2	0.0	-173.8	-230.2
Accumulated amortization relating to decreases and transfers	6.1			3.8	9.9
Amortization and impairments during the financial year	-14.2			-6.5	-20.7
Accumulated amortization at 31 Dec	-58.3	-6.2	0.0	-176.5	-241.0
Net book value at 31 Dec	39.0	0.0	3.1	18.6	60.7

2017, EUR million	Intangible rights	Goodwill	Prepayments and non-current assets under constructions	Other intangible assets	Total
Acquisition cost at 1 Jan	87.4	6.2	3.9	190.0	287.5
Additions	5.5		7.5	0.2	13.3
Decreases	-0.4			-4.0	-4.4
Transfers	0.8		-1.5	0.7	0.0
Acquisition cost at 31 Dec	93.3	6.2	10.0	187.0	296.5
Accumulated amortization at 1 Jan	-38.0	-6.2	0.0	-160.4	-204.6
Accumulated amortization relating to decreases and transfers	0.4			4.0	4.4
Amortization and impairments during the financial year	-12.7			-17.4	-30.1
Accumulated amortization at 31 Dec	-50.2	-6.2	0.0	-173.8	-230.2
Net book value at 31 Dec	43.1	0.0	10.0	13.2	66.2

11. PROPERTY, PLANT AND EQUIPMENT

2018, EUR million	Land and water areas	Buildings and constructions	Machinery and equipment	Other property, plant and equipment	Prepayments and non-current assets under construction	Total
Acquisition cost at 1 Jan	1.1	18.6	102.0	0.6	9.1	131.3
Additions		0.2	6.4		5.0	11.6
Decreases		-0.3	-5.9			-6.2
Transfers		0.4	6.9		-7.9	-0.5
Acquisition cost at 31 Dec	1.1	18.9	109.5	0.6	6.2	136.2
Accumulated depreciation at 1 Jan	-0.1	-13.8	-83.5	-0.5	0.0	-98.0
Accumulated depreciation relating to decreases and transfers		0.3	5.8			6.1
Depreciation and impairments during the financial year		-0.5	-8.5	0.0		-9.0
Accumulated depreciation at 31 Dec	-0.1	-14.0	-86.3	-0.5	0.0	-100.9
Net book value at 31 Dec	1.0	4.9	23.2	0.0	6.2	35.3

2017, EUR million	Land and water areas	Buildings and constructions	Machinery and equipment	Other property, plant and equipment	Prepayments and non-current assets under construction	Total
Acquisition cost at 1 Jan	1.1	17.4	102.7	0.6	5.3	127.1
Additions	0.0	0.4	2.7		7.1	10.2
Decreases		-0.1	-5.9			-6.0
Transfers		0.8	2.5		-3.3	0.0
Acquisition cost at 31 Dec	1.1	18.6	102.0	0.6	9.1	131.3
Accumulated depreciation at 1 Jan	-0.1	-13.5	-82.6	-0.5	0.0	-96.7
Accumulated depreciation relating to decreases and transfers		0.1	5.9			6.0
Depreciation and impairments during the financial year		-0.4	-6.8	0.0		-7.3
Accumulated depreciation at 31 Dec	-0.1	-13.8	-83.5	-0.5	0.0	-98.0
Net book value at 31 Dec	1.0	4.7	18.5	0.1	9.1	33.3

12. INVESTMENTS

2018, EUR million	Shares in Group companies	Receivables from Group companies	Other shares and holdings	Total
Net book value at 1 Jan	2,123.9	289.5	121.9	2,535.3
Additions	0.2	156.3		156.5
Decreases and transfers	-31.2		-21.5	-52.6
Net book value at 31 Dec	2,093.0	445.7	100.4	2,639.2

2017, EUR million	Shares in Group companies	Receivables from Group companies	Other shares and holdings	Total
Net book value at 1 Jan	2,103.5	302.2	118.6	2,524.3
Additions	33.4		3.6	37.0
Decreases and transfers	-13.0	-12.7	-0.3	-26.0
Net book value at 31 Dec	2,123.9	289.5	121.9	2,535.3

13. INVENTORIES

EUR million	2018	2017
Raw materials and supplies	31.0	28.4
Finished goods	78.8	56.8
Prepayments	14.5	3.7
Total	124.2	89.0

14. RECEIVABLES

NON-CURRENT RECEIVABLES

EUR million	2018	2017
Interest-free non-current receivables		
Deferred tax assets	4.5	4.8
Total interest-free non-current receivables	4.5	4.8
Total non-current receivables	4.5	4.8

CURRENT RECEIVABLES

EUR million	2018	2017
Interest-bearing current receivables		
From the Group companies	209.1	105.2
Total interest-bearing current receivables	209.1	105.2
Interest-free current receivables		
Advances paid		
To the Group companies	18.8	18.8
To others	0.0	0.0
Total	18.8	18.8
Trade receivables		
From the Group companies	36.1	40.9
From others	136.7	132.9
Total	172.8	173.8
Accrued income		
From the Group companies	5.5	33.6
From others	38.2	25.9
Total	43.7	59.5
Other current interest-free receivables		
From the Group companies	0.0	0.0
From others	13.0	15.1
Total	13.0	15.1
Total interest-free current receivables	248.4	267.3
Total current receivables	457.5	372.5
Total receivables	462.0	377.3

ACCRUED INCOME

EUR million	2018	2017
Interests	6.2	6.0
Taxes	2.1	4.7
Exchange rate differences	27.4	11.4
Dividends	0.0	30.0
Other	8.0	7.5
Total	43.7	59.5

15. MONEY-MARKET INVESTMENTS

EUR million	2018	2017
Money-market investments		
Book value	0.0	25.0
Fair value	0.0	25.0
Difference	0.0	0.0

Money-market investments include company's short-term investments.

16. EQUITY

EUR million	2018	2017
Restricted equity		
Share capital at 1 Jan	221.8	221.8
Share capital at 31 Dec	221.8	221.8
Share premium account at Jan 1	257.9	257.9
Share premium account at 31 Dec	257.9	257.9
Fair value reserve at 1 Jan	4.4	2.7
Cash flow hedges	15.3	1.7
Fair value reserve at 31 Dec	19.7	4.4
Total restricted equity at 31 Dec	499.4	484.0
Unrestricted equity reserve		
Unrestricted equity reserve at 1 Jan	200.0	200.0
Unrestricted equity reserve at 31 Dec	200.0	200.0
Retained earnings at 1 Jan	582.6	622.1
Net profit for the period	132.5	41.3
Dividends paid	-80.8	-80.7
Share-based incentive plan		
Shares given	1.1	0.1
Shares returned	0.0	-0.2
Retained earnings and net profit for the period ending at 31 Dec	635.4	582.6

EUR million	2018	2017
Total unrestricted equity at 31 Dec	835.3	782.6
Total equity at 31 Dec	1,334.7	1,266.6
Total distributable funds at 31 Dec	835.3	782.6

CHANGE IN TREASURY SHARES

	EUR million	Number of shares
Acquisition value / number at Jan 1, 2018	20.1	2,988,935
Change	-1.1	-156,638
Acquisition value/number at Dec 31, 2018	19.1	2 832,297

17. ACCUMULATED APPROPRIATIONS

EUR million	2018	2017
Appropriations		
Appropriations in the property, plant and equipment by asset class are as follows		
Buildings and constructions	0.7	0.8
Machinery and equipment	0.9	1.5
Other property, plant and equipment	0.0	0.0
Intangible rights	1.1	0.5
Other intangible assets	2.4	3.0
Total	5.2	5.8
Change in appropriations		
Appropriations at 1 Jan	5.8	6.9
Change in untaxed reserves in income statement	-0.7	-1.1
Appropriations at 31 Dec	5.2	5.8

On December 31, 2018, deferred tax liabilities on accumulated appropriations were EUR 1.0 million (1.2).

18. OBLIGATORY PROVISIONS

EUR million	2018	2017
Non-current provisions		
Pension provisions	5.8	5.9
Other obligatory provisions		
Environmental provisions	13.0	11.4
Total other obligatory provisions	13.0	11.4
Total non-current provisions	18.8	17.3
Current provisions		
Other obligatory provisions		
Personnel related provisions	0.4	0.4
Restructuring provisions	1.0	4.5
Total current provisions	1.4	4.9
Total provisions	20.1	22.2
Change in obligatory provisions		
Obligatory provisions at 1 Jan	22.2	21.5
Used during the financial year	-3.7	-1.2
Unused amounts reversed	0.0	-0.3
Increase during the financial year	1.7	2.1
Obligatory provisions at 31 Dec	20.1	22.2

Environmental risks and liabilities are disclosed in Note 4.6 in the Notes to the Consolidated Financial Statements.

19. NON-CURRENT LIABILITIES

EUR million	2018	2017
Loans from financial institutions	295.0	215.0
Other non-current liabilities	371.9	472.9
Total	666.9	687.9
Long-term liabilities maturing in		
2020 (2019)	55.4	110.0
2021 (2020)	0.0	205.0
2022 (2021)	150.0	0.0
2023 (2022) or later	461.4	372.9
Total	666.9	687.9
Liabilities maturing in 5 years or more		
Loans from financial institutions	90.0	0.0
Other non-current liabilities	371.4	372.9
Total	461.4	372.9

Other non-current liabilities include a bond of EUR 150 million, which matures on May 13, 2022 and a bond of EUR 200 million, which matures on May 30, 2024.

20. CURRENT LIABILITIES

EUR million	2018	2017
Interest-bearing current liabilities		
Loans from financial institutions	10.0	20.6
Current portion of other non-current loans to others	100.0	0.0
Other interest-bearing current liabilities		
To the Group companies	1,041.9	987.5
To others	20.9	20.4
Total interest-bearing current liabilities	1,172.9	1,028.6

The current portion of other non-current loans to others includes a bond of EUR 100 million, which matures on May 27, 2019.

EUR million	2018	2017
Interest-free current liabilities		
Prepayments received		
From others	1.6	0.5
Total	1.6	0.5
Trade payables		
To the Group companies	47.9	37.7
To others	78.1	91.8
Total	126.0	129.5
Accrued expenses		
To the Group companies	11.9	8.2
To others	69.8	59.8
Total	81.8	68.0
Other interest-free liabilities	9.5	9.1
Total interest-free current liabilities	218.8	207.1
Total current liabilities	1,391.7	1,235.6
Accrued expenses		
Salaries	11.4	12.3
Interests and exchange rate differences	10.1	9.8
Other	60.3	45.9
Total	81.8	68.0

21. DERIVATIVES

NOMINAL VALUES

EUR million	2018 Total	2017 Total
Currency derivatives		
Forward contracts	358.1	287.1
of which cash flow hedges	14.1	
Interest rate derivatives		
Interest rate swaps	245.0	270.0
of which cash flow hedges	145.0	170.0
of which fair value hedges	100.0	100.0
Other derivatives		
Electricity contracts, bought (GWh)	2,107.0	1,651.0
Electricity forward contracts	2,107.0	1,494.0
of which cash flow hedges	2,107.0	1,494.0
Electricity future contracts		158.0
of which cash flow hedges		158.0

FAIR VALUES

2018, EUR million	Positive	Negative	Net
Currency derivatives			
Forward contracts	2.3	2.2	0.2
of which cash flow hedges	0.1		0.1
Interest rate derivatives			
Interest rate swaps	1.7	1.3	0.4
of which cash flow hedges		1.3	-1.3
of which fair value hedges	1.7		1.7
Other derivatives			
Electricity forward contracts, bought	24.5		24.5
of which cash flow hedges	24.5		24.5

FAIR VALUES

2017, EUR million	Positive	Negative	Net
Currency derivatives			
Forward contracts	4.7	1.3	3.4
of which cash flow hedges			
Interest rate derivatives			
Interest rate swaps	2.7	1.6	1.0
of which cash flow hedges		1.6	-1.6
of which fair value hedges	2.7		2.7
Other derivatives			
Electricity forward contracts, bought	6.1		6.1
of which cash flow hedges	6.1		6.1
Electricity future contracts, bought		0.1	-0.1
of which cash flow hedges		0.1	-0.1

22. COLLATERAL AND CONTINGENT LIABILITIES

EUR million	2018	2017
Guarantees		
On behalf of the Group companies		
For loans	363,7	410,4
For other obligations	54,7	50,2
On behalf of others	2,5	3,5
Total	420,9	464,1
Other obligations		
On behalf of others	6,1	0,0
Leasing liabilities		
Maturity within one year	4,1	4,1
Maturity after one year and no later than 5 years	9,0	9,0
Maturity after 5 years	5,8	5,4
Total	18,9	18,5

23. SHARES AND HOLDINGS OWNED BY KEMIRA OYJ

SHARES IN GROUP COMPANIES

	Group holding, %	Kemira Oyj holding, %
AS Kemivesi	100.00	100.00
Kemira Argentina S.A.	100.00	15.80
Kemira Cell Sp. z.o.o.	55.00	55.00
Kemira Chemicals (Nanjing) Co.,Ltd.	100.00	100.00
Kemira Chemicals (Shanghai) Co.,Ltd.	100.00	100.00
Kemira Chemicals (UK) Ltd.	100.00	100.00
Kemira Chemicals (Yanzhou) Co.,Ltd.	100.00	100.00
Kemira Chemicals Brasil Ltda.	100.00	99.87
Kemira Chemicals Canada Inc.	100.00	100.00
Kemira Chemicals Korea Corporation	100.00	100.00
Kemira Chemie Ges.mbH	100.00	100.00
Kemira Chile Comercial Limitada	100.00	99.00
Kemira Europe Oy	100.00	100.00
Kemira Germany GmbH	100.00	100.00
Kemira GrowHow A/S	100.00	100.00
Kemira Hong Kong Company Limited	100.00	100.00
Kemira International Finance B.V.	100.00	100.00
Kemira KTM d.o.o.	100.00	100.00
Kemira Operon Oy	100.00	100.00
Kemira Świecie Sp. z o.o.	100.00	100.00
Kemira Water Danmark A/S	100.00	100.00
Kemira Water Solutions Brasil	100.00	100.00
PT Kemira Indonesia	100.00	74.80
PT Kemira Chemicals Indonesia	99.77	99.77

KEMIRA OYJ'S BOARD OF DIRECTORS' PROPOSAL TO THE ANNUAL GENERAL MEETING FOR THE DISTRIBUTION OF DISTRIBUTABLE FUNDS AND SIGNING OF THE FINANCIAL STATEMENTS AND BOARD OF DIRECTORS' REVIEW

On December 31, 2018, Kemira Oyj's distributable funds are EUR 835,333,094 of which the net profit for the period amounts to EUR 132,458,292.

The Board of Directors proposes to the Annual General Meeting to be held on March 21, 2019 that a dividend of EUR 0.53 per share will be distributed. No dividend will be paid on own shares held by the company as treasury shares on the dividend record date.

On the date of this proposal for the distribution of profits, a total of 152,510,260 shares are held outside the company, the total dividends paid would amount to EUR 80,830,438. The distributable funds of EUR 754,502,657 to be retained as equity.

There have been no material changes in the company's financial position since December 31, 2018. The liquidity of the company remains good, and the proposed dividend payment does not risk the solvency of the company.

Helsinki, February 7, 2019

Jari Paasikivi Chairman	Kerttu Tuomas Vice Chairman
Wolfgang Büchele	Shirley Cunningham
Kaisa Hietala	Timo Lappalainen
Jari Rosendal CEO	

Auditor's report

(Translation from the Finnish original)

To the Annual General Meeting of Kemira Oyj

REPORT ON THE AUDIT OF FINANCIAL STATEMENTS

OPINION

We have audited the financial statements of Kemira Oyj (business identity code 0109823-0) for the year ended 31 December, 2018. The financial statements comprise the consolidated statement of financial position, income statement, statement of comprehensive income, statement of changes in equity, statement of cash flows and notes, including a summary of significant accounting policies, as well as the parent company's balance sheet, income statement, cash flow statement and notes to the financial statements.

In our opinion

- the consolidated financial statements give a true and fair view of the Group's financial performance and financial position in accordance with International Financial Reporting Standards (IFRS) as adopted by the EU; and
- the financial statements give a true and fair view of the parent company's financial performance and financial position in accordance with the laws and regulations governing the preparation of financial statements in Finland and comply with statutory requirements.

Our opinion is consistent with the additional report submitted to the Audit Committee.

BASIS FOR OPINION

We conducted our audit in accordance with good auditing practice in Finland. Our responsibilities under good auditing practice are further described in the Auditor's Responsibilities for the Audit of Financial Statements section of our report.

We are independent of the parent company and of the group companies in accordance with the ethical requirements that are applicable in Finland and are relevant to our audit, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

According to our best knowledge and understanding all services other than the statutory audit we have provided for parent company and group companies comply with regulations governing the services other than the statutory audit in Finland. We have not provided any prohibited non-audit services re-ferred to in Article 5(1) of regulation (EU) 537/2014. All services other than the statutory audit which we have provided have been disclosed in note 2.2. to the consolidated financial statements and in note 4 to the parent company's financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

KEY AUDIT MATTERS

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the financial statements of the current period. These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

We have also addressed the risk of management override of internal controls. This includes consideration of whether there was evidence of management bias that represented a risk of material misstatement due to fraud.

Key audit matter	How our audit addressed the key audit matter
Goodwill impairment testing Consolidated financial statements as of 31.12.2018 includes Goodwill amounting to EUR 512,5 million. Management has conducted goodwill impairment testing and as a result of the testing conducted, Kemira has not accounted for any impairments over goodwill as at 31.12.2018. Goodwill impairment testing requires substantial management judgment over the recoverable amounts over: • estimations over the projected future cash flow; • long term growth assumptions; and • applied discount rate. For further details over the goodwill impairment testing conducted by the management is presented in the note 3.1. within the consolidated financial statements.	As part of our audit procedures we have evaluated the estimates over the future recoverable cash flows and we have compared, that the forecasts used in the impairment tests are based on approved long term forecast and budgets approved. We have assessed the impairment testing by: • evaluating the key assumptions applied per segment applied • assessing the growth estimates and comparing them to historical performance • comparing applied discount rates to independent third party sources • assessing the sensitivity analysis over the long term assumptions and discount rate. We have also assessed the sensitivity analysis, which is disclosed in the consolidated financial statements note 3.1. In particular we considered the completeness of the disclosures regarding those Cash Generating Units with material goodwill balances and where a reasonably possible change in certain variables could lead to impairment.

Key audit matter	How our audit addressed the key audit matter
Fair value measurement of other shares Consolidated financial statements as of 31.12.2018 include other shares amounting to EUR 228,4 million. This item consists mainly from shares of Pohjolan Voima Oy (PVO) and Teollisuuden Voima Oyj (TVO) for which fair value is EUR 226,9 million. Fair value measurement of these shares require substantial management judgment relating to the following estimates: • future electricity market prices in Finland; • future electricity production costs; and • applied discount rate. For further details over the fair value measurement of conducted by the management is presented in the note 3.4. within the consolidated financial statements. This matter is regarded as significant risk of material misstatement in accordance with EU Audit Regulation (537/2014) Article 10 paragraph 2 c.	Our audit procedures included assessment of the underlying electricity price and production cost assumptions used in the management's valuation model against the available third party information. We have assessed the processes relating to fair value measurement and reasonableness of the valuation model applied by the management. We have assessed the assumptions that management has applied in the Weighted Average Cost of Capital (WACC) rate which is used as discount rate. We have compared the assumptions and estimates applied by management to other available third party estimates and assessed the reasonableness of these assumptions.

We have not identified significant risks of material misstatement in accordance with EU Audit Regulation (537/2014) Article 10 paragraph 2 c in the parent company's financial statements.

RESPONSIBILITIES OF THE BOARD OF DIRECTORS AND THE CHIEF EXECUTIVE OFFICER FOR THE FINANCIAL STATEMENTS

The Board of Directors and the Chief Executive Officer are responsible for the preparation of consolidated financial statements that give a true and fair view in accordance with International Financial Reporting Standards (IFRS) as adopted by the EU, and of financial statements that give a true and fair view in accordance with the laws and regulations governing the preparation of financial statements in Finland an comply with statutory requirements. The Board of Directors and the Chief Executive Officer are also responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Board of Directors and the Chief Executive Officer are responsible for assessing the parent company's and the group's ability to continue as going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting. The financial statements are prepared using the going concern basis of accounting unless there is an intention to liquidate the parent company or the group or cease operations, or there is no realistic alternative but to do so.

AUDITOR'S RESPONSIBILITIES IN THE AUDIT OF FINANCIAL STATEMENTS

Our objectives are to obtain reasonable assurance on whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with good auditing practice will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with good auditing practice, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the parent company's or the group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of the Board of Directors' and the Chief Executive Officer use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the parent company's or the group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events so that the financial statements give a true and fair view.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit. We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

OTHER REPORTING REQUIREMENTS

INFORMATION ON OUR AUDIT ENGAGEMENT

We were first appointed as auditors by the Annual General Meeting of Kemira Oyj on 21 March 2012, and our appointment represents a total period of uninterrupted engagement of 7 years.

OTHER INFORMATION

The Board of Directors and the Chief Executive Officer are responsible for the other information. The other information comprises information included in the Board of Directors Review and in the Annual Report, but does not include the financial statements and our report thereon. We obtained the Board of Directors Review prior to the date of the auditor's report, and the Annual Report is expected to be made available to us after the date of the auditor's report.

Our opinion on the financial statements does not cover the other information.

In connection with our audit of the financial statements, our responsibility is to read the other information identified above and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. With respect to Board of Directors Review, our responsibility also includes considering whether the Board of Directors Review has been prepared in accordance with the applicable laws and regulations.

In our opinion, the information in the Board of Directors Review is consistent with the information in the information in the financial statements and the Board of Directors Review has been prepared in accordance with the applicable laws and regulations.

If, based on the work we have performed, we conclude that there is a material misstatement in of the information included in the Board of Directors Review, we are required to report this fact. We have nothing to report in this regard.

OTHER OPINIONS

We support that the financial statements should be adopted. The proposal by the Board of Directors regarding the use of the profit shown on the balance sheet is in compliance with the Limited Liability Companies Act. We support that the Board of Directors of the parent company and the Chief Executive Officer should be discharged from liability for the financial period audited by us.

Helsinki, 7 February 2019

Deloitte Oy
Audit Firm

Jukka Vattulainen
Authorised Public Accountant (KHT)

Quarterly earnings performance

EUR million	1–3	4–6	7–9	10–12	2018 Total	1–3	4–6	7–9	10–12	2017 Total
Revenue										
Pulp & Paper	368.7	376.0	385.2	390.4	1,520.2	372.2	368.9	363.0	372.8	1,476.9
Industry & Water	245.0	271.7	284.4	271.5	1,072.6	237.8	248.3	259.2	263.8	1,009.1
Total	613.7	647.6	669.6	661.8	2,592.8	610.0	617.2	622.2	636.6	2,486.0
EBITDA [1)]										
Pulp & Paper	42.1	44.6	48.2	53.0	187.8	45.1	45.1	34.6	55.1	179.9
Industry & Water	26.1	38.0	34.6	28.3	127.0	21.5	22.0	35.7	23.4	102.5
Total	68.2	82.5	82.8	81.3	314.8	66.7	67.0	70.2	78.4	282.4
EBIT [1)]										
Pulp & Paper	18.2	21.1	14.6	25.8	79.8	22.9	23.0	10.4	30.6	86.9
Industry & Water	14.5	17.4	21.3	15.3	68.5	9.7	10.5	23.0	11.2	54.4
Total	32.7	38.5	35.9	41.1	148.2	32.6	33.5	33.4	41.8	141.4
Finance costs, net	-3.9	-7.4	-7.9	-5.8	-25.0	-6.7	-7.7	-7.4	-7.1	-28.9
Share of the results of associates	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	-0.1	0.2
Profit before tax	28.8	31.1	28.1	35.4	123.3	26.1	25.9	26.1	34.6	112.6
Income taxes	-5.8	-7.5	-5.9	-8.9	-28.1	-6.3	-6.2	-6.1	-8.8	-27.4
Net profit for the period	23.0	23.5	22.1	26.5	95.2	19.8	19.6	20.0	25.8	85.2
Net profit attributable to										
Equity owners of the parent	21.3	21.8	20.6	25.5	89.1	18.3	17.7	18.4	24.3	78.6
Non-controlling interests	1.7	1.8	1.5	1.0	6.1	1.6	1.9	1.7	1.5	6.6
Net profit for the period	23.0	23.5	22.1	26.5	95.2	19.8	19.6	20.0	25.8	85.2
Earning per share, basic and diluted, EUR	0.14	0.14	0.14	0.17	0.58	0.12	0.12	0.12	0.16	0.52

1) Includes items affecting comparability.

Reconciliation of IFRS figures

EUR million	1–3	4–6	7–9	10–12	2018 Total	1–3	4–6	7–9	10–12	2017 Total
ITEMS AFFECTING COMPARABILITY IN EBITDA AND EBIT										
Operative EBITDA										
Pulp & Paper	42.7	45.4	52.3	51.2	191.7	46.0	47.8	48.5	55.4	197.7
Industry & Water	26.6	34.8	36.7	33.3	131.5	22.9	29.3	36.0	25.3	113.6
Total	69.4	80.2	89.0	84.5	323.1	69.0	77.1	84.5	80.7	311.3
Total items affecting comparability	-1.2	2.3	-6.2	-3.2	-8.3	-2.3	-10.1	-14.3	-2.2	-28.9
EBITDA	68.2	82.5	82.8	81.3	314.8	66.7	67.0	70.2	78.4	282.4
Operative EBIT										
Pulp & Paper	18.9	22.0	26.6	24.1	91.6	23.8	25.7	24.4	30.9	104.8
Industry & Water	15.0	23.0	23.4	20.8	82.2	11.1	17.9	23.4	13.1	65.5
Total	33.9	45.1	50.0	44.8	173.8	34.9	43.6	47.7	44.0	170.3
Total items affecting comparability	-1.2	-6.6	-14.1	-3.7	-25.6	-2.3	-10.1	-14.3	-2.2	-28.9
EBIT	32.7	38.5	35.9	41.1	148.2	32.6	33.5	33.4	41.8	141.4
Operative EBITDA	69.4	80.2	89.0	84.5	323.1	69.0	77.1	84.5	80.7	311.3
Restructuring and streamlining programs	0.0	-0.8	-5.5	-2.7	-8.9	-1.9	-7.5	-1.2	-2.4	-13.1
Transaction and integration expenses in acquisition	-0.2	0.0	0.0	3.1	2.8	0.1	0.2	0.3	-0.2	0.3
Divestment of businesses and other disposals	0.0	5.7	0.0	0.0	5.7	0.0	-2.6	0.0	0.8	-1.9
Other items	-1.0	-2.6	-0.8	-3.6	-7.9	-0.5	-0.1	-13.4	-0.3	-14.4
Total items affecting comparability	-1.2	2.3	-6.2	-3.2	-8.3	-2.3	-10.1	-14.3	-2.2	-28.9
EBITDA	68.2	82.5	82.8	81.3	314.8	66.7	67.0	70.2	78.4	282.4

EUR million	1–3	4–6	7–9	10–12	2018 Total	1–3	4–6	7–9	10–12	2017 Total
Operative EBIT	33.9	45.1	50.0	44.8	173.8	34.9	43.6	47.7	44.0	170.3
Total items affecting comparability in EBITDA	-1.2	2.3	-6.2	-3.2	-8.3	-2.3	-10.1	-14.3	-2.2	-28.9
Items affecting comparability in depreciation, amortization and impairments	0.0	-8.9	-7.9	-0.5	-17.3	0.0	0.0	0.0	0.0	0.0
Operating profit (EBIT)	32.7	38.5	35.9	41.1	148.2	32.6	33.5	33.4	41.8	141.4
ROCE AND OPERATIVE ROCE										
Operative EBIT	33.9	45.1	50.0	44.8	173.8	34.9	43.6	47.7	44.0	170.3
Operating profit (EBIT)	32.7	38.5	35.9	41.1	148.2	32.6	33.5	33.4	41.8	141.4
Share of the results of associates	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	-0.1	0.2
Capital employed	1,753.9	1,754.6	1,759.5	1,781.4	1,781.4	1,736.8	1,749.7	1,759.9	1,763.2	1,763.2
Operative ROCE, %	9.7	9.7	9.8	9.8	9.8	9.5	9.2	9.2	9.7	9.7
ROCE, %	8.1	8.3	8.5	8.3	8.3	8.1	8.0	7.3	8.0	8.0
NET WORKING CAPITAL										
Inventories	237.1	254.9	268.6	283.8	283.8	230.2	227.1	224.4	223.8	223.8
Trade receivables and other receivables	423.7	449.2	457.3	420.2	420.2	412.8	419.5	398.6	418.8	418.8
Excluding financing items in other receivables	-22.2	-33.4	-33.1	-32.5	-32.5	-15.1	-21.2	-18.3	-21.4	-21.4
Trade payables and other liabilities	495.2	405.4	421.5	439.1	439.1	490.3	384.2	385.6	422.8	422.8
Excluding financing items in other liabilities	-96.5	-12.3	-9.9	-28.0	-28.0	-98.4	-5.6	-11.1	-12.0	-12.0
Net working capital	240.0	277.6	281.1	260.4	260.4	236.0	246.8	230.3	210.5	210.5
INTEREST-BEARING NET LIABILITIES										
Non-current interest-bearing liabilities	758.8	658.4	653.1	646.3	646.3	592.1	690.9	674.5	669.1	669.1
Current interest-bearing liabilities	148.9	243.5	236.1	240.0	240.0	200.3	180.8	186.6	191.4	191.4
Interest-bearing liabilities	907.7	902.0	889.2	886.3	886.3	792.4	871.7	861.2	860.5	860.5
Cash and cash equivalents	229.9	129.3	144.9	144.9	144.9	131.5	113.7	160.5	166.1	166.1
Interest-bearing net liabilities	677.8	772.6	744.3	741.4	741.4	660.9	758.0	700.7	694.4	694.4

Shares and shareholders

SHARES AND SHARE CAPITAL

On December 31, 2018 Kemira Oyj's share capital amounted to EUR 221.8 million and the number of shares was 155,342,557. Each share entitles to one vote at the general meeting. Kemira Oyj's shares are registered in the book-entry system maintained by Euroclear Finland Ltd.

SHAREHOLDERS

At the end of 2018, Kemira Oyj had 34,378 registered shareholders (35,571). Foreign shareholding of Kemira Oyj shares increased 6% during the year and was 27.4% of the shares (25.8%), including nominee-registered holdings. Households owned 17.1% of the shares (17.9%). At year-end, Kemira held 2,832,297 treasury shares (2,988,935), representing 1.8% (1.9%) of all company shares. A list of Kemira's largest shareholders is updated monthly and can be found on the company website at **www.kemira.com** > Investors.

LISTING AND TRADING

Kemira Oyj's shares are listed on Nasdaq Helsinki. The trading code for the shares is KEMIRA and the ISIN code is FI0009004824.

Kemira Oyj's share closed at EUR 9.85 at the Nasdaq Helsinki at the end of 2018 (11.50). Shares registered a high of EUR 12.03 (12.44) and a low of EUR 9.34 (10.33). The average share price of Kemira was EUR 11.00 (11.47). The share price decreased 14% during the year while Helsinki Cap index decreased 9%. STOXX Chemicals (Europe), chemical sector benchmark index for Kemira decreased 17% in 2018. Kemira's market capitalization, excluding treasury shares, was EUR 1,502 million at the end of the year 2018 (1,752).

In 2018, Kemira Oyj's share trading volume on Nasdaq Helsinki was 44 million (54) shares. Share turnover value decreased 23% and was EUR 478.9 million (614.9). The average daily trading volume was 175,444 (215,814) shares.

In addition to Nasdaq Helsinki, Kemira shares are traded on several alternative market places or multilateral trading facilities (MTF), for example at BATS, Chi-X and Turquoise. The total share trading in 2018 was 68 million (85) shares, of which 35% (36%) was executed on other trading facilities than on Nasdaq Helsinki. Source: Nasdaq and Kemira.com.

Up-to-date information on Kemira's share price is available on the company's website at **www.kemira.com** > Investors.

DIVIDEND POLICY AND DIVIDEND DISTRIBUTION

Kemira's dividend policy aims to pay a stable and competitive dividend.

The company's Board of Directors will propose to the Annual General Meeting that a per-share dividend of EUR 0.53 totaling EUR 81 million (81) be paid for the financial year 2018. The Annual General Meeting will be held on March 21, 2019. The dividend ex-date is March 22, 2019, dividend record date March 25, 2019, and payment date April 5, 2019.

In April 2018, a dividend of EUR 0.53 per share was paid for the financial year that ended December 31, 2017. The dividend record date was March 23, 2018, and the payment (EUR 81 million in total) date April 5, 2018.

BOARD AUTHORIZATIONS

The Annual General Meeting on March 21, 2018 authorized the Board of Directors to decide upon repurchase of a maximum of 4,950,000 company's own shares ("Share repurchases authorization"). Shares will be repurchased by using unrestricted equity either through a tender offer with equal terms to all shareholders at a price determined by the Board of Directors or otherwise than in proportion to the existing shareholdings of the company's shareholders in public trading on the Nasdaq Helsinki Ltd (the "Helsinki Stock Exchange") at the market price quoted at the time of the repurchase. The price paid for the shares repurchased through a tender offer under the authorization shall be based on the market price of the company's shares in public trading. The minimum price to be paid would be the lowest market price of the share quoted in public trading during the authorization period and the maximum price the highest market price quoted during the authorization period.

Shares shall be acquired and paid for in accordance with the Rules of the Helsinki Stock Exchange and Euroclear Finland Ltd. Shares may be repurchased to be used in implementing or financing mergers and acquisitions, developing the company's capital structure, improving the liquidity of the company's shares or to be used for the payment of the annual fee payable to the members of the Board of Directors or implementing the company's share-based incentive plans. In order to realize the aforementioned purposes, the shares acquired may be retained, transferred further or cancelled by the company. The Board of Directors will decide upon other terms related to share repurchases. The share repurchase authorization is valid until the end of the next Annual General Meeting. The Board had not exercised its authorization by December 31, 2018.

The AGM authorized the Board of Directors to decide to issue a maximum of 15,600,000 new shares and/or transfer a maximum of 7,800,000 company's own shares held by the company ("Share issue authorization"). The new shares may be issued and the company's own shares held by the company may be transferred either for consideration or without consideration. The new shares may be issued and the company's own shares held by the company may be transferred to the company's shareholders in proportion to their current shareholdings in the company, or by displaying the shareholders' pre-emption right, through a directed share issue, if the company has a weighty financial reason to do so, such as financing or implementing mergers and acquisitions, developing the capital structure of the company, improving the liquidity of the company's shares or if this is justified for the payment of the annual fee payable to the members of the Board of Directors or implementing the company's share-based incentive plans. The directed share issue may be carried out without consideration only in connection with the implementation of the company's share-based incentive plan. The subscription price of new shares shall be recorded to the invested unrestricted equity reserves. The consideration payable for company's own shares shall be recorded to the invested unrestricted equity reserves. The Board of Directors will decide upon other terms related to the share issues. The share issue authorization is valid until May 31, 2019. The share issue authorization has been used and shares owned by the Group were conveyed to members of the Board and key employees in connection with the remuneration.

MANAGEMENT SHAREHOLDING

The members of the Board of Directors as well as the President and CEO and his Deputy held 511,885 (454,215) Kemira Oyj shares on December 31, 2018 or 0.33% (0.29%) of all outstanding shares and voting rights (including treasury shares and shares held by the related parties and controlled corporations). Jari Rosendal, President and CEO, held 77,200 shares (45,000) on December 31, 2018. Members of the Management Board, excluding the President and CEO and his Deputy, held a total of 107,961 shares on December 31, 2018 (77,641), representing 0.07% (0.05%) of all outstanding shares and voting rights (including treasury shares and shares held by the related parties and controlled corporations). Up-to-date information regarding the shareholdings of the Board of Directors and Management is available on Kemira's website at **www.kemira.com** > Investors.

LARGEST SHAREHOLDERS DECEMBER 31, 2018

	Shareholder	Number of shares	% of shares and votes
1	Oras Invest Ltd	28,278,217	18.2
2	Solidium Oy	25,896,087	16.7
3	Varma Mutual Pension Insurance Company	5,329,836	3.4
4	Ilmarinen Mutual Pension Insurance Company	3,100,000	2.1
5	Nordea funds	1,974,872	1.3
6	OP-Henkivakuutus Ltd.	1,403,278	0.9
7	Veritas Pension Insurance Company Ltd.	1,379,226	0.9
8	The State Pension Fund	700,000	0.5
9	Nordea Life Assurance Finland Ltd.	618,541	0.4
10	Laakkonen Mikko	600,000	0.4
11	Pohjola Fund Management	483,639	0.3
12	Paasikivi Pekka	434,000	0.3
13	Hulkko Juha Olavi	400,000	0.3
14	Valio Pension Fund	379,450	0.3
15	Sigrid Juselius Foundation	365,000	0.2
	Kemira Oyj	2,832,297	1.8
	Nominee registered and foreign shareholders	42,582,397	27.4
	Others, total	38,585,717	24.7
	Total	**155,342,557**	**100.0**

SHAREHOLDING BY NUMBER OF SHARES HELD DECEMBER 31, 2018

Number of shares	Number of shareholders	% of shareholders	Shares total	% of shares and votes
1–100	8,802	25.6	518,102	0.3
101–500	14,075	40.9	3,873,976	2.5
501–1,000	5,383	15.7	4,178,372	2.7
1,001–5,000	5,124	14.9	10,756,232	6.9
5,001–10,000	549	1.6	4,004,999	2.6
10,001–50,000	337	1.0	6,778,024	4.4
50,001–100,000	41	0.1	3,064,082	2.0
100,001–500,000	47	0.1	9,742,569	6.3
500,001–1,000,000	4	0.0	2,509,365	1.6
1,000,001–	10	0.0	109,916,836	70.8
Total	**34,378**	**100.0**	**155,342,557**	**100.0**

Information for investors

FINANCIAL REPORTS IN 2019

Kemira will publish three financial reports in 2019.

April 26, 2019: Interim report for January–March
July 19, 2019: Half-year financial report for January–June
October 24, 2019: Interim report for January–September

The financial reports and related presentation material are available on Kemira's website at **www.kemira.com** > Investors. Furthermore, Kemira's stock exchange and press releases, Annual Reports (incl. Corporate Responsibility Report and Financial Statements) and other investor information are also available on the website. On the site, visitors can register to receive releases by e-mail and order the company's Financial Statements. Financial Statements can also be ordered from Kemira Oyj, Group Communications, tel. +358 10 8611.

INVESTOR COMMUNICATIONS

The purpose of Kemira's investor communications is to provide capital markets with open and reliable information on the company and its operating environment in order to give market participants a factual overview of Kemira as an investment. Kemira's investor communications aims to ensure that everyone operating in the markets has equal access to sufficient and correct information concerning the company, and to ensure that information is disclosed consistently and without delay. Kemira Oyj is domiciled in Helsinki, Finland, and the company's shares are listed on Nasdaq Helsinki. Kemira Oyj complies with the laws of Finland and the regulations of Nasdaq Helsinki and Finland's Financial Supervisory Authority.

SILENT PERIOD

Kemira observes a silent period before issuing financial statements or interim reports. During the period, Kemira's representatives do not comment on Kemira's financial statements or interim reports for the ongoing reporting period the specific silent period relates to. The schedule for the silent period and publication of financial information and closed periods is displayed on Kemira's website under Investors > Investor Calendar. Kemira's Investor Relation function is responsible for keeping the calendar up-to-date.

ANNUAL GENERAL MEETING

Kemira's Annual General Meeting will be held on Friday, March 21, 2019 at 1.00 p.m. in Marina Congress Center, Katajanokanlaituri 6, Helsinki, Finland. A shareholder who on the record date of the Annual General Meeting, March 11, 2019, is registered in the company's shareholders' register maintained by Euroclear Finland Ltd, is entitled to attend and participate in the Annual General Meeting. Registration to the Annual General Meeting has begun on February 8, 2019 and registration instructions has been published on that day as a stock exchange release and at Kemira's web site at **www.kemira.com** > Investors > Corporate Governance > Annual General Meeting > Annual General Meeting 2019. Kemira will release a stock exchange release on the Annual General Meeting's decisions immediately after the meeting.

DIVIDEND DISTRIBUTION

For dividend proposal, please see page 96.

CHANGE OF ADDRESS

Kemira's shareholders are kindly requested to report any change of address to the bank or brokerage firm in which they have their book-entry account. This will also update information in registers, maintained by Euroclear Finland Ltd, which Kemira uses to send mail to its shareholders.

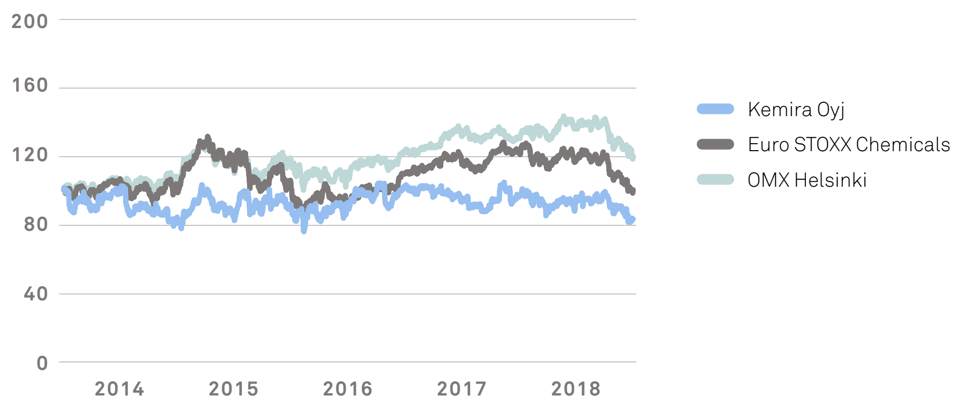
INVESTOR RELATIONS

Olli Turunen, Vice President, Investor Relations
tel. +358 40 552 8907
e-mail: olli.turunen@kemira.com

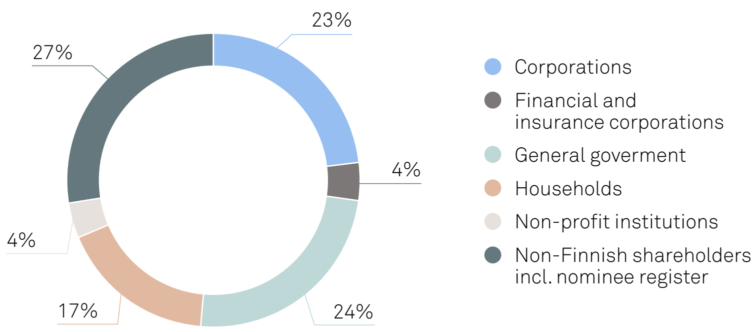
BASIC SHARE INFORMATION

Listed on: Nasdaq Helsinki Ltd
Trading code: KEMIRA
ISIN code: FI0009004824
Industry group: Materials
Industry: Chemicals
Number of shares on December 31, 2018: 155,342,557
Listing date: November 10, 1994

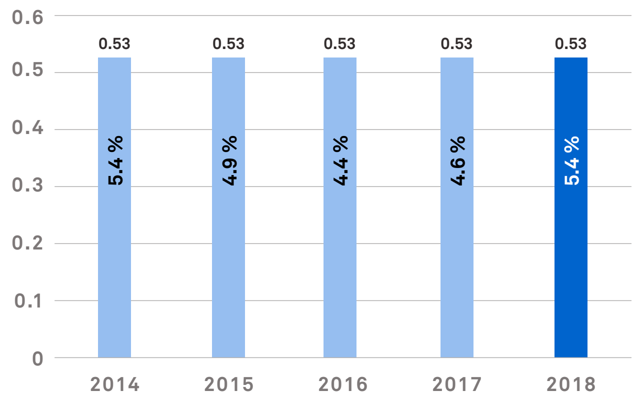
SHARE PRICE 2014–2018



OWNERSHIP DECEMBER 31, 2018

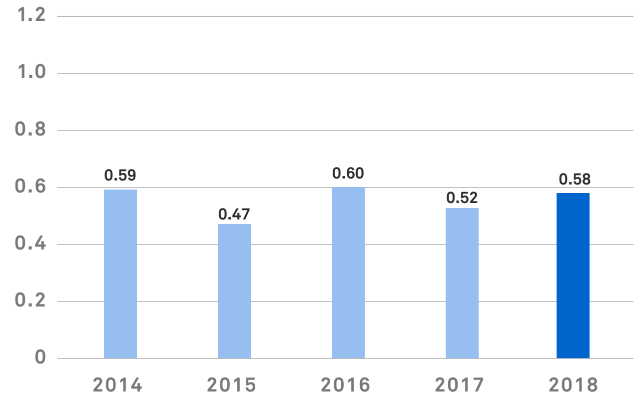


DIVIDEND PER SHARE, EUR AND DIVIDEND YIELD, %[1)]



[1)] The dividend for 2018 is the Board of Directors' proposal to the Annual General Meeting.

EARNINGS PER SHARE
EUR



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 2018, Kemira had annual revenue of around EUR 2.6 billion and 4,915 employees. Kemira shares are listed on the Nasdaq Helsinki Ltd.

WWW.KEMIRA.COM