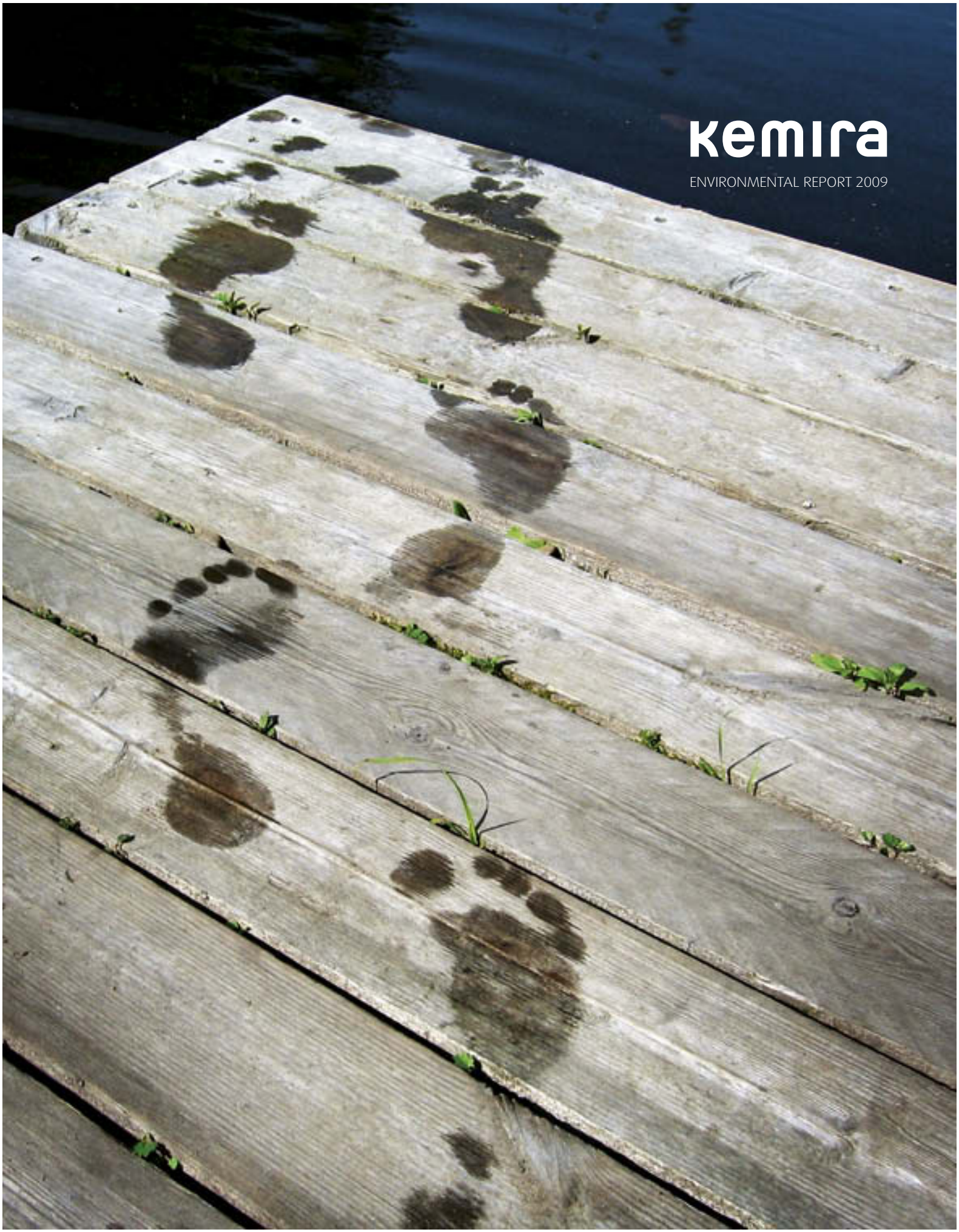


Kemira

ENVIRONMENTAL REPORT 2009

DEAR READER,

Water is an essential raw material for the industry and a vital necessity for us all. In the future, water will also become a strategic raw material that will present major challenges for the industry in terms of shortage and cost. Kemira's vision is to be a leading water chemistry company. We will focus on customers in water-intensive industries, providing them with effective means for water quality and quantity management.

The discussion around the water shortage has intensified in recent years. Stricter environmental regulations and customers' needs for enhanced efficiency open up a world of opportunity for Kemira to innovate and develop new water applications. The need to find sustainable and energy-efficient solutions is a significant growth factor for Kemira's business operations.

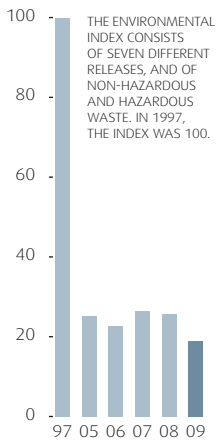
Kemira aims to continuously improve environmental and occupational safety. We also invest in research and development to create new products and services for water management. Processing fresh water from seawater and recycling sludge for energy production are but two of our diverse research focuses.

More effective water management requires new solutions. Kemira will contribute to this work through its extensive water-related expertise and research input. Water chemistry plays a key role in this equation.

HARRI KERMINEN
PRESIDENT AND CEO OF KEMIRA

PHOTO: SUSANNA KEKKONEN, COVER PHOTO: ISTOCKPHOTO, BACK COVER PHOTO: ISTOCKPHOTO

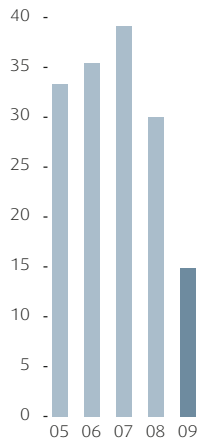
ENVIRONMENTAL INDEX



THE ENVIRONMENTAL INDEX CONSISTS OF SEVEN DIFFERENT RELEASES, AND OF NON-HAZARDOUS AND HAZARDOUS WASTE. IN 1997, THE INDEX WAS 100.

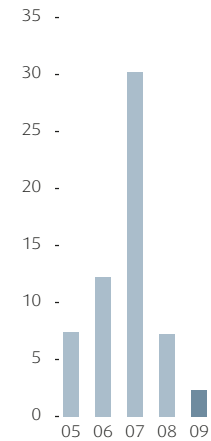
ENVIRONMENTAL OPERATING COSTS

EUR MILLION



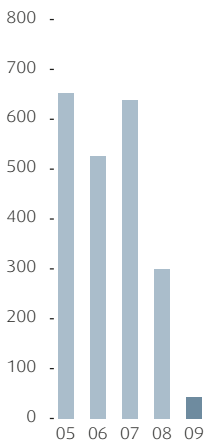
ENVIRONMENTAL CAPITAL EXPENDITURE

EUR MILLION

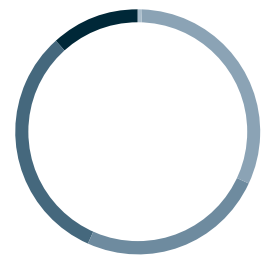


NON-HAZARDOUS WASTE GENERATION

1,000 TONS



HAZARDOUS WASTE TREATMENT

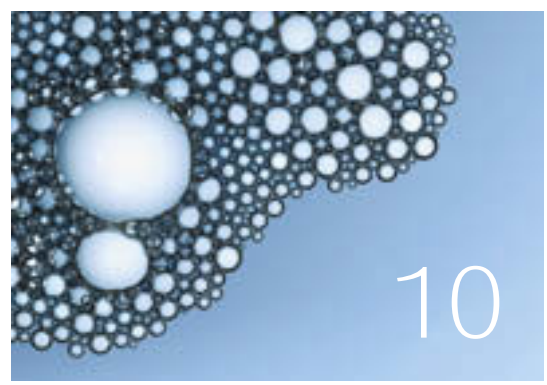


1% ON-SITE INCINERATION
31% OFF-SITE INCINERATION
25% OFF-SITE LANDFILL
31% RECYCLING
12% OTHER TREATMENT
0% ON-SITE LANDFILL

KEY FIGURES 2009

EUR million	2009	2008
Revenue	**2,500.1**	2,832.7
Operating profit excluding non-recurring items	**175.0**	132.6
Operating profit	**157.4**	74.0
Operating profit excluding non-recurring items, %	**7.0**	4.7
Operating profit, %	**6.3**	2.6
Profit before tax	**102.9**	1.8
Net profit	**85.5**	1.8
EPS, EUR	**0.61**	–0.01
ROCE, %*	**7.8**	3.5
Cash flow after investments	**202.2**	2.7
Equity ratio, % at period-end	**45**	34
Gearing, % at period-end	**53**	107
Personnel at period-end	**8,493**	9,405

* 12 month rolling average



AT THE CORE OF BUSINESS

"Finding solutions to environmental issues and safety concerns is essential for a leading chemical company. It is a prerequisite for all our business operations," says **Aarno Salminen**, Vice President for Environment and Safety.

TEXT **MATTI REMES** PHOTOS **SUSANNA KEKKONEN** AND **ISTOCKPHOTO**

"Our most important environmental goals include reduced waste water discharges, efficient use of water and other raw materials and improved energy efficiency, not only on our own sites but in the customers' processes too," Salminen continues.

Kemira has achieved significant results in recent years in all areas related to safety and the environment. According to Salminen, small things often make a big difference.

"We operate some 90 production facilities, and the equipment and working methods require continual development. Although Kemira's products facilitate sustainable development, we must professionally handle hazardous chemicals and demanding processes to manufacture these products."

ENVIRONMENTAL REMEDIATION

Kemira did not make any major environmental investments in 2009. Closure of the former piling area for iron sulfate at the Pori facility, on the southwestern coast of Finland, is the largest single project. This project will take several years.

At a second plant on the west coast of Finland, Kemira is carrying out a lake sediment remediation project close to its local produc-

Improved workplace safety was Kemira's greatest achievement of 2009.

tion facility. The sediment will first be treated with sulfate-reducing bacteria and then dredged. The dredged material will be treated and transferred elsewhere for final disposal.

CONSISTENT PRACTICES

The chemical industry is a strictly regulated sector. Respect for laws is a given, but Kemira's internal standards may set even more exacting requirements for site operations. Kemira continues to bring consistency to work practices and procedures.

Besides company's internal standards, Kemira is also committed to the international Responsible Care program, a voluntary chemical industry initiative to improve health, safety and environmental performance. In addition, Kemira adheres to the International Financial Reporting Standards (IFRS), which also affect environmental reporting.

In 2009, Kemira focused on further improving its environmental, health, safety and quality (EHSQ) management systems. Coordinated systems will help achieve even better results.

"Growth in new geographical areas has shifted our focus to South America and Asia, where we aim to create consistent environmental and safety certificates and operational and reporting practices for all locations," says Salminen.

BIG IMPROVEMENT IN WORKPLACE SAFETY

Salminen regards improved workplace safety as the organization's greatest achievement in 2009. Kemira had no major industrial accidents or fatalities in 2009.

The rate of occupational incidents at Kemira has decreased to 3.5 per million hours worked – from approximately ten a few years ago.

"When it comes to occupational safety, our goal is to become one of the world's safest chemical companies in the next few years. During our best months in 2009, we had only one lost time accident (LTA1) incident. I consider this an excellent achievement, but we still have a long way to go."

In addition to occupational accidents, Kemira also records near miss situations in the safety management system. After every situation, the company analyzes how comparable hazardous conditions could be avoided in the future.

"Continual and visible leadership is crucial to improved safety," says Salminen. "We have also increased the number of technical evaluations for process safety in our production facilities." ■

THE KEMIRA CODE OF CONDUCT ADDRESSES:

- Financial reporting
- Environment, health and safety (EHS)
- Business partners
- Fair competition
- Conflicts of interest and bribery
- Support for human rights
- Insider information and investor relations
- Company assets
- Confidentiality and privacy
- Reporting procedures

WE ARE COMMITTED TO:

- Preventing and minimizing any harmful effects of our operations on the environment, people and property
- Continuously improving our environmental and safety performance
- Promoting sustainable development by making efficient use of energy and natural resources
- The international Responsible Care (RC) program
- Globalizing our certified management systems

Kemira is one of the leading experts in water treatment. Strong research and development activities allows the company to anticipate future needs and offer efficient solutions.

TEXT **MATTI REMES**
PHOTOS **RAMI LAPPALAINEN** AND **ISTOCKPHOTO**

SUSTAINABLE WATER USE IS INCREASINGLY CRITICAL

In addition to climate change, the availability of clean water is a major challenge for humankind. The need for water is increasing everywhere, but at the same time, water is becoming more scarce – be it Asian megalopolises or European industrial facilities. Freshwater consumption has more than doubled since World War II and is expected to rise another 25 percent by 2030, mainly because of world population growth.[1]

Kemira has extensive experience in municipal and industrial water and sludge treatment. Principal strengths lie in excellent process know-how and a wide selection of products for chemical water treatment. The goal is to promote and facilitate effective water use now and in the future.

WATER EXPERTISE SUPPORTS SUSTAINABLE DEVELOPMENT

"Our vision is to be a leading water chemistry company, committed to finding solutions to global water issues, present and future. According to our new strategy, we increasingly focus activities based on our water chemistry knowledge," says **Johan Grön**, Vice President of R&D and Technology.

1 THE PACIFIC INSTITUTE: WATER SCARCITY AND CLIMATE CHANGE 2009

"Water is a natural focus for Kemira, because it combines our strong expertise with growing global markets."

Environmental considerations are essential to Kemira's strategy, guiding both environmental work and business operations. In order to reduce raw water consumption, more effective water recycling and reuse is important for water-intensive industries and municipalities alike.

Kemira's key customer groups are in water-intensive industries, and these customers will need more effective methods for reducing water and energy use in the future. Cost savings drive new solutions. Stricter emission standards and environmental laws also guide and control water and energy use.

R&D RESPONDS TO FUTURE WATER USE CHALLENGES

Water management requires attention to the overall efficiency of water use in customer processes.

"We need to develop new methods for reducing the use of raw water and wastewater and for increasing energy efficiency and water recycling," Grön says.

Innovations call for effective research and development. Based on a new strategy and mode of operation, Kemira's global research and development organization is built around five research centers. This increases the company's ability to create products and business models that help customers improve water efficiency.

GLOBAL INNOVATIONS FOR LOCAL USE

A global R&D network allows Kemira to effectively adjust its product selection to meet local needs.

Says Grön, "In China, for example, paper production is increasing, as is the use of straw and other non-wood materials for paper manufacturing, because raw materials from wood are becoming scarce. This creates new challenges in water treatment and recycling – an important issue and a future research focus for Kemira."

Reusing waste from different industries has long been on Kemira's research and development agenda. Calcium sulfate, a by-product of the mining industry, can be used to make high-quality filling materials for the paper industry. Wastewaters in the metal industry also include recyclable raw materials that Kemira can use in water chemical production.

>> CONTINUES ON PAGE 8

ALL WATER IS VALUABLE

In recent years, improved equipment and automation systems have increased water efficiency in different fields. But process optimization – more effective water circulation and residual collection and reuse – also requires further development of chemical methods.

Seawater desalination has become an increasingly important alternative to traditional water supply methods, especially in areas suffering from a water shortage. Reverse osmosis, a process in which water is forced through a filtration membrane, is currently the most popular membrane technology for desalination.

In the future, Kemira's know-how is needed for more advanced analytics, as environmental laws are likely to require active monitoring of residuals in water circulation. The company also predicts a need for improved desalination methods: the water circulation process always produces salts.

Kemira is devoting more resources to the research on membrane processes. Membrane surfaces must be kept clean to ensure efficiency and full functionality. At the same time, solid substances must be separated in advance from fluid streams by using chemicals and coating agents. The process generates small amounts of concentrates, for which there is presently no comprehensive management solution. Kemira will focus on improving the functionalities of membrane surface qualities.

Close links between chemistry and water treatment solutions will enable the decreasing of treatment plant size and more effective use of main and side streams in processes.

EVERY DROP COUNTS

By 2030, wastewaters from industries and municipalities will no longer be environmental burdens; rather, they will be sources of valuable raw materials.

Wastewater treatment plants will become multifunctional facilities that recycle and collect all valuable substances from wastewater. The separated impurities can be used for energy production by turning biomass into biogas through fermentation and by incineration of the sludge.

Sludge from wastewater treatment contains a great deal of nutrients that can be collected effectively through chemical processes. Alternatively, sludge containing phosphorus and nitrogen can be refined and used as fertilizers.

Methane from wastewater treatment will also be used more effectively to produce, for example, electricity or other fuels for vehicles.

Multifunctional wastewater treatment plants will, however, require more effective water chemicals and processes. Research and development at Kemira focuses on finding solutions to these issues as well. ■

WASTEWATER TREATMENT IN 2030

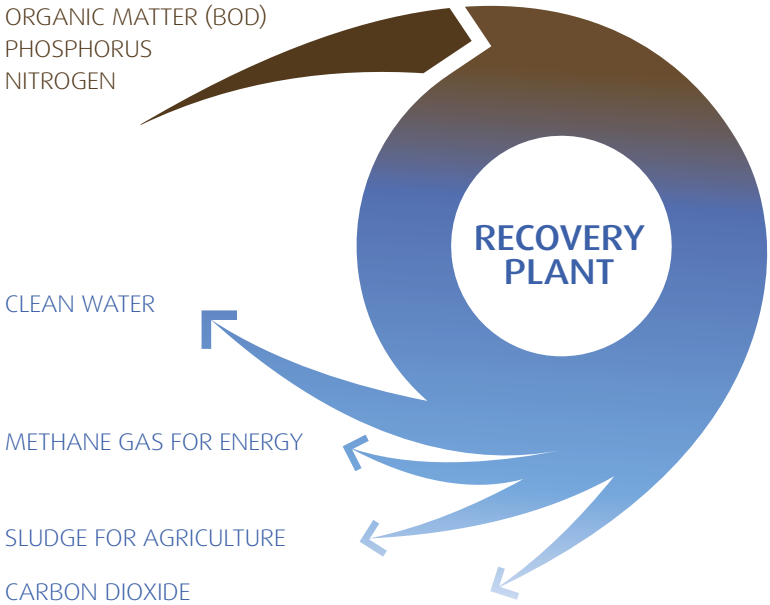


ILLUSTRATION: ANTTI KANGASSALO

>> CONTINUED FROM PAGE 7

Intensive water reuse gives rise to new research subjects, such as the decomposition of medicines, which will become a global topic in the future.

FOCUS ON FUTURE NEEDS

R&D as well as technology are based on a deep understanding of customers' business operations. Anticipating future needs in water-related issues is equally if not even more important.

Continues Grön, "In addition to better products, R&D means more effective production, supply chain and customer service. Instead of single products, we will increasingly focus on developing systems that combine a selection of products with expertise and know-how."

Responding to future challenges requires close customer relations and new types of partnerships; for example, with component manufacturers and companies supplying automation and control systems. Collaboration among different fields provides customers with the best possible service experiences. ■

KEMIRA RUNS ON CARBON-FREE ENERGY

The vast majority of energy Kemira uses is carbon-free. The goal is for efficient energy use, which helps the environment and reduces costs.

TEXT **ARJA HAUKKASALO** PHOTO **ISTOCKPHOTO**

To stop climate change, the world needs to save energy, improve energy efficiency and switch to renewable carbon-free fuels. Kemira is committed to these goals.

"We have carried out energy-saving programs for more than ten years now. Optimizing production and increasing environmental awareness are ongoing processes that require continual development," says **Elina Engman**, Vice President for Energy.

MINIMAL EMISSIONS

Kemira's carbon emissions have decreased by some 95 percent since 2000. This significant improvement results from structural changes in business operations.

"Only one of our sites, in Sweden, holds assigned emissions allowances under the EU emissions trading system – and that number is not even large," Engman says.

Kemira mainly uses energy which is generated in a carbon-free manner.

HIGHER SELF-SUFFICIENCY

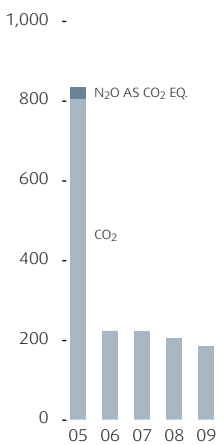
Kemira seeks to increase its self-sufficiency in electricity globally from the current 25 percent. The Group already holds wind, water and nuclear-power shares in Finnish energy companies.

"We will continue to improve energy efficiency in our production, integrating it into our environmental management system. In 2008, we committed to a voluntary energy efficiency initiative. The directive aims to reduce carbon emissions by 9 percent in Finland by the end of 2016," Engman says.

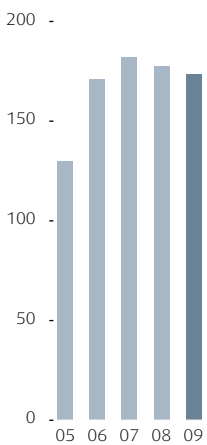
Kemira seeks to improve energy efficiency globally. In 2009, the company began implementing changes related to its energy efficiency system in all of its production units. In 2010, Kemira will establish specific goals for energy efficiency improvements. Another goal is for more effective energy use in logistics and transportation. ■

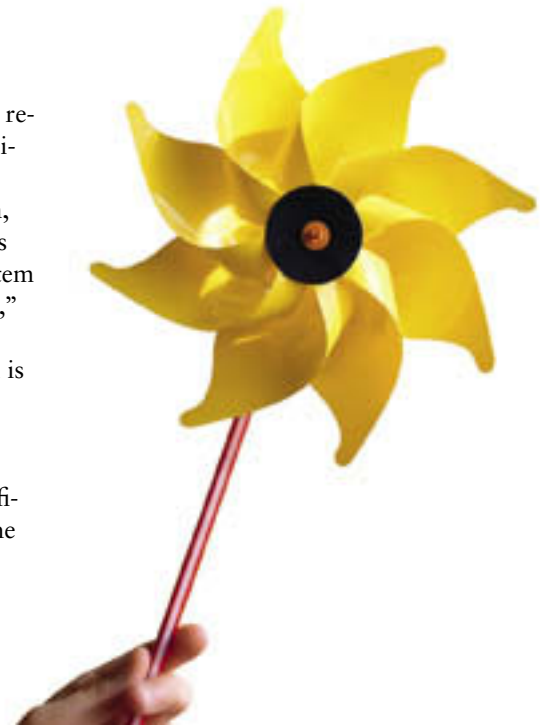
Kemira seeks higher self-sufficiency in electricity.

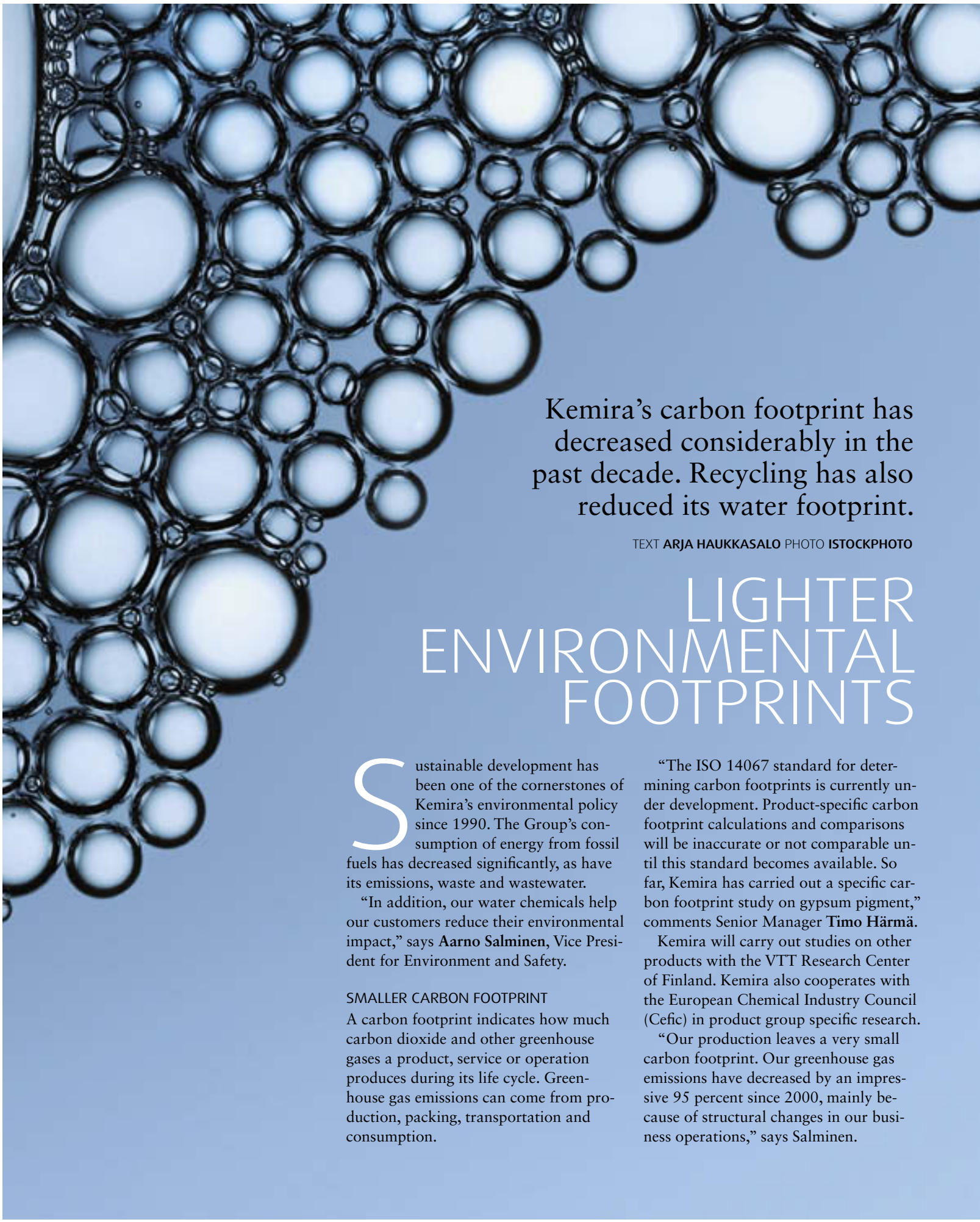
GREENHOUSE GAS EMISSIONS
1,000 TONS
CO_2 EQ.



VOC EMISSIONS
TONS







Kemira's carbon footprint has decreased considerably in the past decade. Recycling has also reduced its water footprint.

TEXT **ARJA HAUKKASALO** PHOTO **ISTOCKPHOTO**

LIGHTER ENVIRONMENTAL FOOTPRINTS

Sustainable development has been one of the cornerstones of Kemira's environmental policy since 1990. The Group's consumption of energy from fossil fuels has decreased significantly, as have its emissions, waste and wastewater.

"In addition, our water chemicals help our customers reduce their environmental impact," says **Aarno Salminen**, Vice President for Environment and Safety.

SMALLER CARBON FOOTPRINT

A carbon footprint indicates how much carbon dioxide and other greenhouse gases a product, service or operation produces during its life cycle. Greenhouse gas emissions can come from production, packing, transportation and consumption.

"The ISO 14067 standard for determining carbon footprints is currently under development. Product-specific carbon footprint calculations and comparisons will be inaccurate or not comparable until this standard becomes available. So far, Kemira has carried out a specific carbon footprint study on gypsum pigment," comments Senior Manager **Timo Härmä**.

Kemira will carry out studies on other products with the VTT Research Center of Finland. Kemira also cooperates with the European Chemical Industry Council (Cefic) in product group specific research.

"Our production leaves a very small carbon footprint. Our greenhouse gas emissions have decreased by an impressive 95 percent since 2000, mainly because of structural changes in our business operations," says Salminen.

Kemira's production leaves only a small carbon footprint.

Electricity is one of the main components in Kemira's carbon footprint. Nearly 80 percent of its electricity is generated in a carbon-free manner.

Salminen continues, "The heat and steam produced by our main energy partners is increasingly generated using renewable and recovered fuels and carbon-free process energy. We will continue to raise the proportion of carbon-free energy. All of our production units will be implementing energy saving and efficiency programs that will further reduce our carbon footprint."

RECYCLED RAW MATERIALS REDUCE FOOTPRINTS AND COSTS

Kemira has carried out life cycle analyses for its main products, measuring resource use and environmental impact at every stage from raw material production to the end of the product chain.

"For carbon footprint calculations covering the entire product life cycle, we need to collect data from our raw material suppliers and customers using our products," Härmä points out.

Kemira has already been able to reduce its carbon footprints and other environmental impacts through effective recycling of materials.

According to Salminen, Kemira uses extensive amounts of by-products from other industrial companies as raw materials for water chemicals. The company sources, for example, pickling liquor, hydrochloric acid, aluminum and iron containing wastes from metal industry as well as scrap. Sulfur from industrial waste gases or refineries is used to produce sulfuric acid and energy. Calcium phosphate from the Yara phosphorous acid plant, located next to Kemira's Siilinjärvi production facility, is a raw material for a calcium sulfate pigment.

Recycling of materials also makes economic sense.

ENVIRONMENTALLY FRIENDLINESS FOR CUSTOMERS

"Preserving the environment is an integral factor in our business growth. We have developed a comprehensive product range and knowledge base in water treatment. We help our customers meet environmental requirements and decrease their environmental impact," says Salminen.

Kemira's products and services also help customers optimize the use of water, energy and materials and reduce waste, allowing for smaller carbon and water footprints. In addition, the company assists its customers in treating sludge from wastewater treatment to produce gas that can be used for fuels.

Chemical products play an important role in not only today's energy solutions but in future solutions as well. Separating carbon dioxide from flue gases from power plants (CCS, Carbon Capture and Storage) requires solutions developed by the chemical industry. Biorefineries use chemicals to produce fuels for traffic and transportation.

WATER PALETTE UNDER EVALUATION

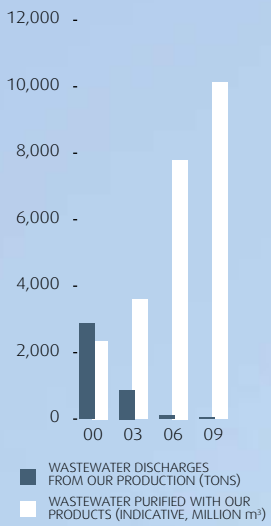
A water footprint indicates how much water is required to manufacture a product or produce a service. It can also be used to demonstrate, for example, how much water is consumed by people and agriculture. A reliable and comparable water footprint can be measured only after standardization work is completed.

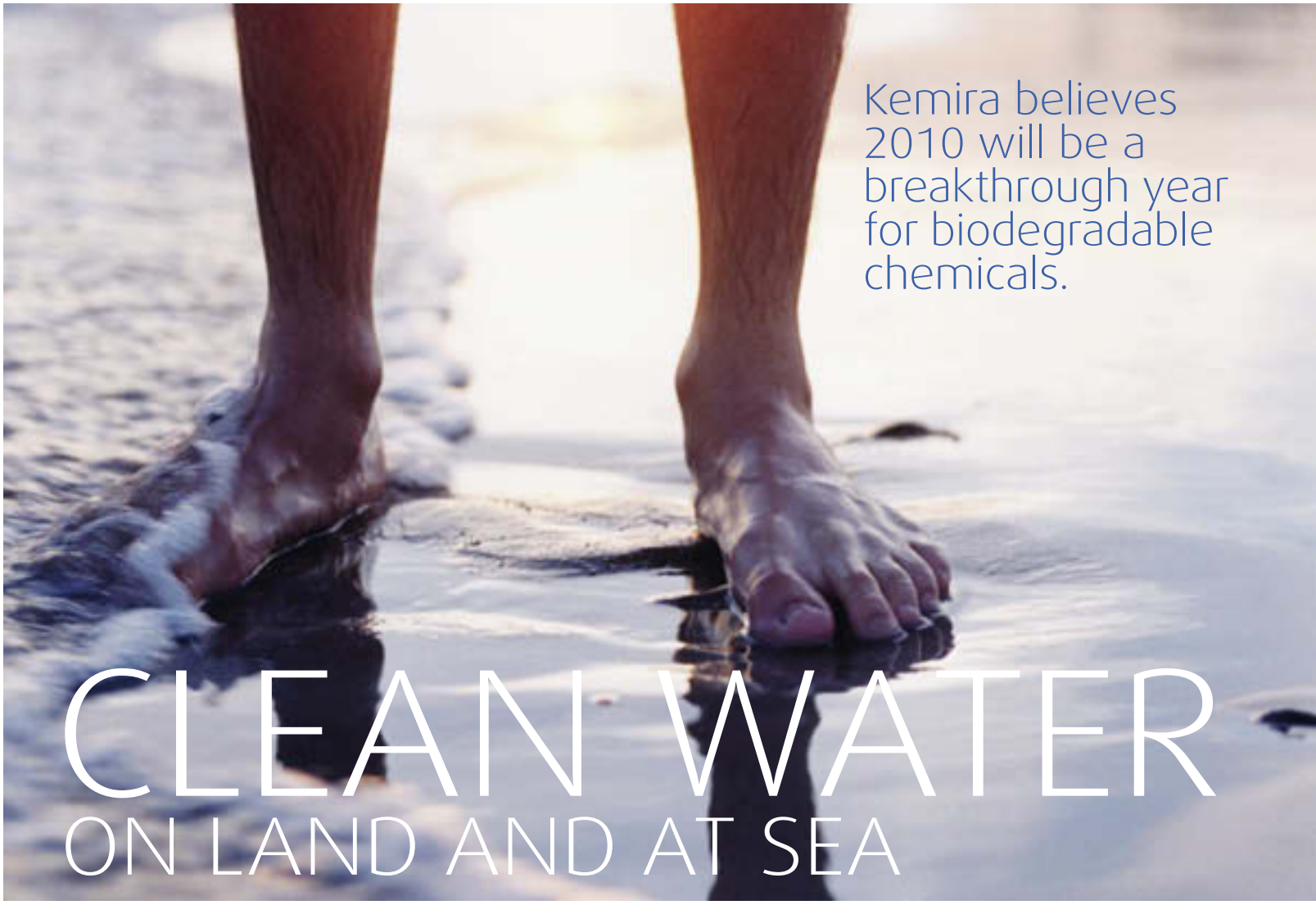
Work on standardization for measuring water footprints began in Stockholm in late 2009. The standardization team is expected to present preliminary technical guidelines by the end of 2010. A decision will be made whether or not to include the full water palette when calculating the water footprint: blue water (ground and surface water), green water (rain) and gray water (wastewater, its impurities and their impact). This will certainly take the water footprint discussion into a more scientific direction.

For economic and environmental reasons, Kemira's customers in the water-intensive industries strive to minimize their use of water and other raw materials. Kemira's principal goal is to combine its expertise in water chemistry with its extensive know-how on industrial processes to create solutions that help reduce water use.

"We have begun studying the water footprints of our key products. The first step is to calculate the basic balance for process water use and then examine whether the amount can be reduced and water recycled. We already know that many of our production processes consume little water because of effective recycling," adds Härmä. ■

IMPACT ON WATER





Kemira believes 2010 will be a breakthrough year for biodegradable chemicals.

CLEAN WATER ON LAND AND AT SEA

Kemira's mission is to provide products and concepts that improve water management – regardless of conditions and location. Environmentally sustainable products often offer an additional bonus: they help cut costs.

TEXT **RISTO PENNANEN**
PHOTOS **ISTOCKPHOTO** AND **GETTY IMAGES**

The pipelines used for oil production in the North Sea run for dozens of miles, criss-crossing the bottom of the ocean nearly 10,000 feet deep at places. This is one of the most demanding environments where Kemira works to provide solutions for customers.

The challenging conditions, the vulnerable undersea ecosystems and strict environmental requirements set extremely high standards for this work. Kemira's biodegradable scale inhibitors prevent minerals from settling in layers on the pipes, ensuring safe and effective production.

In addition to oil production, Kemira provides solutions for other demanding projects and locations, including municipal water management and the food and paper industries.

These investments are guided by environmental requirements, but they also offer improved quality and cost savings, which are often based on enhanced processes, improved equipment durability and reduced need for raw materials. Water consumption in paper machines, for example, has decreased by one-third in the past decade because of improved automation systems – and more effective chemicals.

Kemira believes that the best ideas are always based on collaboration with customers. ■

LEGISLATION BOOSTS MARKETS

In the European Union, water use is regulated by the Water Framework Directive. All large markets – such as the United States, Brazil and China – have similar laws and regulations.

In addition to legislation, water protection is guided by many international agreements. The Helsinki Commission (HELCOM) is the governing body of the Convention on the Protection of the Marine Environment of the Baltic Sea. The convention works for reducing phosphorous and nitrogen emissions, which increase eutrophication.

The treatment of sludge is also regulated by multi-level legislation in both environmental and agricultural sectors. The most important guidelines are the norms set for drinking water and wastewater, and the standards for the products used in water treatment. These standards vary from one country to another. ■

BIODEGRADABLE PRODUCTS ENHANCE OIL PRODUCTION

Kemira's biodegradable products play an important role in oil production in the North Sea.

When seawater is injected into the deposits to move oil toward the drill pipes, it comes into contact with a different type of water: the water under the seabed. These two types of water do not mix well, and the layers of scale that form as a result may damage pipelines and halt production.

The scale can be removed using acid treatments, but a more sensible solution is to prevent scale from forming in the first place. Biodegradable water chemicals provide the most ecological solution to this problem.

Norwegian oil drilling areas in the North Sea, with their challenging conditions, serve as an important reference case for Kemira, as this area has the strictest environmental requirements in the world. The results have been excellent.

Projects in the North Sea lead the way, but the general trend is the same everywhere: the demand for biodegradable products in oil production is increasing around the world.

Norway considers a chemical biodegradable if 60 percent of the chemical decomposes within 28 days. Kemira believes that the coming years will mark a breakthrough for biodegradable chemicals in these applications. ■

FENNODOSE MONITORS WATER IN PAPER PLANTS

FennoDose, a small-scale automation solution developed in Kemira's research center, monitors water quality and controls water chemical use in paper plants.

Clean water is critical for processes where paper pulp moves along the web at highway speed. Impurities would pose a serious threat to a system involving large masses, high pressures and extreme temperatures. The system automatically measures how clean the water is, for example, at the end of the process. If the amount of impurities exceeds the default level, FennoDose increases chemical dosage. Without automation of this type, paper plants would need to use chemicals as a precaution, unaware of the real need.

After implementing FennoDose, some paper plants have been able to improve the efficiency of chemical use by several dozen percent. ■

Kemira's operations are based on product and production safety, promoting the well-being of people and the environment. Kemira offers water treatment and recycling solutions that help customers reduce their environmental impact.

SAFETY AND RESPONSIBILITY: THE FOUNDATION FOR ALL OPERATIONS

TEXT **ARJA HAUKKASALO** PHOTO **ISTOCKPHOTO**

The chemical industry is a demanding business sector. In addition to numerous international agreements, products and operations are regulated by national and local legislation around the world. This sets high standards for product and technology expertise, as well as work and product safety, throughout the supply chain.

Society sets high expectations as well, because chemicals cause concern. Chemicals are often regarded as environmental problems; however, they are essential to healthcare and to finding solutions to environmental issues.

For Kemira, environmental business is a growing and strategically significant area of expertise. Core operations include supplying water and water treatment chemicals to the industry and society. Chemicals are needed to secure clean drinking water. They also play an important role in wastewater treatment and environmental protection. Product safety and responsible supply chain management are vitally important to Kemira – as they are an integral part of its daily operations.

REACH PROMOTES PRODUCT SAFETY

The implementation of the REACH regulation (Registration, Evaluation and Authorization of Chemicals) is currently the most important product safety process. Supervised by the newly established European Chemicals Agency in Helsinki, REACH is a historically extensive collection of laws related to chemicals, aimed at ensuring the safe use of chemicals for people and the environment.

Kemira completed the first phase as planned, carrying out more than 3,000 preregistrations by December 2008. These included substances imported by Kemira into the European Union, directly or indirectly, and the most important raw materials. Preparations for the first phase of the actual registration, due by December 2010, are fully under way.

"REACH significantly increases the need for information exchange in the supply chain. In addition to product-specific information, companies will now need to provide information on the qualities, amounts and uses of different substances and on risk management for consumers and the environment. This requires additional expert staff and considerable changes in information systems," says **Liisa Rapeli-Likitalo**, Manager, Kemira REACH team.

Companies are currently implementing forums for information exchange. This process will provide information on how many companies are involved in the reg-

Kemira has already been nominated as Lead Registrant to take care of the joint registration dossiers for over 20 substances.

istration of specific substances and what costs they will incur. Kemira has already been assigned principal responsibility for the registration of over 20 substances and for their registration materials.

"We will also continue to improve product safety in many other ways. We will further develop product management and assessment procedures, and we will also pay even closer attention to safety concerns in product development projects," says Rapeli-Likitalo.

WORK SAFETY THROUGHOUT THE PRODUCTION CHAIN

In addition to product safety, success requires well-managed work and process safety.

"We believe that all accidents can be avoided, and we are committed to continually improving safety levels. Well-managed safety is based on visible leadership and commitment to safety at work. We need both company management and staff contribution," says **Aarno Salminen**, Vice President for Environment and Safety.

The year 2009 was record-breaking in work place safety for Kemira. The lost time accident rate (LTA1), which indicates the number of occupational accidents causing an absence of one or more days per one million working hours, was 3.5 in 2009, compared to 4.4 in the previous year. Kemira had no major industrial accidents in its production units.

"This favorable trend shows that determined safety management produces results. Our goal is to secure a place among the world's safest companies in our field," says Salminen.

ALWAYS ROOM FOR IMPROVEMENT

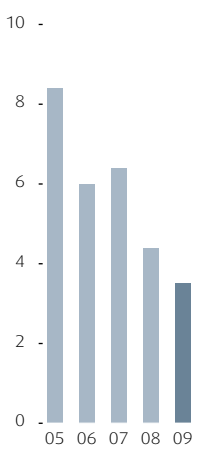
Competence, safe technology and careful operation of facilities are key to safety in the process industries.

"We have put more resources in process safety auditing throughout the organization. We have new tools for measuring technical safety in our production facilities, and we also employ a more systematic approach to internal risk analyses," says Salminen.

The goal is to prevent and eliminate potentially hazardous conditions. Kemira has extended its new safety reporting system to more than 10 new locations in 2009, also providing training for local staff.

Changes in technical and operational systems in production will be looked at more systematically. In addition to accidents, near-miss situations must be reported immediately. A description of the incident is sent to a supervisor for further measures and also to all employees to ensure effective delivery of information on procedures needed to prevent similar situations. Local safety experts provide feedback on safety issues to employees and those responsible for safety at local production facilities. ■

LOST TIME INCIDENTS
PER MILLION
WORKING HOURS (LTA1)



ENVIRONMENTAL REPORTING

Kemira's environmental emissions continued to decrease in 2009, as well. Perhaps the most significant achievement was the improved level of safety.

REDUCED EMISSIONS, IMPROVED SAFETY

Kemira's environmental emissions decreased by about 27 percent, even though the Group revenue declined by 11 percent. The improvement in safety was an important step and visible especially in the decreased number of occupational accidents. Kemira's environmental costs dropped considerably, largely because of the economic downturn and earlier divestments. At the same time, two extensive long-term projects in environmental remediation were launched in Finland.

GREENHOUSE GAS EMISSIONS AND WASTE VOLUMES DECREASE

Kemira's environmental statistics were collected from 88 production sites around the world, excluding separate warehousing and distribution centers. In 2009, four plants were closed down but three additional sites were opened. For the first time, the statistics reflect in full the divestment of Kemira's titanium dioxide business in 2008: reported production and energy consumption levels decreased by 18 percent and 24 percent, respectively, in 2009.

Greenhouse gas emissions fell by 9 percent from 2008. The present level is only 3 percent higher than that in the early 2000s, largely because of earlier business restructuring and reduced production in 2009. Sulfur and nitrogen emissions fell considerably, as well.

Volatile organic compounds (VOC) emissions remained at their previous levels. Water volumes and wastewater loads continued to decrease, excluding mercury, with an accidental emission at one plant.

Compared to 2008, the amount of non-hazardous waste dropped by 80 percent, mainly because of business restructuring in Pori. Hazardous waste decreased as well, especially at the Paper business segment's sites and in the paints and coatings business, owing to more effective operations as well as one-time items.

REMARKABLY LOW ENVIRONMENTAL COSTS

Kemira's environmental costs continued to decrease sharply in 2009, totaling EUR 17.2 million (EUR 37.2 million in 2008), less than 1 percent of the Group's revenue.

Environmental investments amounted to EUR 2.3 million (2008: 7.2 million), with no major investments under way or under consideration.

Compared to 2008, environmental operating costs dropped by a little over 50 percent, totaling EUR 14.9 million (2008: 30 million). This was again primarily due to business restructuring in Pori, but the economic downturn – namely, cost savings and reduced production volumes – also facilitated this development. ■

Kemira's environmental report employs the principles of financial reporting and complies with the Finnish Accountancy Board's (KILA) general instructions on the recognition, measurement and disclosure of environmental issues in the annual reports of companies, 2006.

In addition, the data of the report is in substantial compliance with the Responsible Care Reporting Guidelines (2006) of Cefic, the European Chemical Industry Council. Of the core parameters defined by this guideline, nitrous oxide and CFC compounds are not reported because of no significant emissions, and transport incident data is not collected globally.

PHOTO: ISTOCKPHOTO

ENVIRONMENT AND SAFETY AT KEMIRA SITES IN 2009

1 FINLAND

- In Pori, Kemira began landscaping its large, discontinued iron sulfate landfill. Read more on page 4.
- In Vaasa, an environmental remediation project was launched to remove the most polluted sediment areas from Lake Infjärden, located beside Kemira's production facility. Read more on page 4.
- The production facilities in Kokkola and Kuusankoski accidentally emitted mercury and chlorine dioxide. No environmental or health impacts were detected. Kemira has examined the incident and corrective measures have been implemented.

2 SWEDEN:

- The demolition of two discontinued plants began in Helsingborg. This project will improve safety and infrastructure as well as the landscape at the production site and nearby areas. Kemira also enhanced the prevention of hydrogen chloride emissions and upgraded the hazardous waste storage area in Helsingborg.
- The introduction of Tikkurila's new production plant in Nykvarn improves energy efficiency, reduces transportation and leads to wastewater free production.

3 CHINA:

- Kemira upgrades processes at its paper chemical factory in Yanzhou. This improves safety and reduces solvent emissions.

4 FRANCE AND POLAND

- Kemira upgraded the washing units and improved water recycling in its water chemical plants.

5 THE NETHERLANDS:

- The Botlek plant's energy efficiency plan was approved.

6 SPAIN:

- Kemira made many improvements in leak elimination, water cycle closing and chlorine emission prevention in Tarragona.
- Filtration was enhanced in Zaramillo, which increases recycling and reduces waste.

7 BRAZIL:

- Production adjustments reduced waste at the Rio Claro plant. Kemira also improved infrastructure and water separation. ■

ENVIRONMENTAL DATA FOR THE KEMIRA GROUP

	2005	2006	2007	2008	**2009**
RELEASES INTO WATER, TONS					
Chemical Oxygen Demand (COD)[1]	79	29	69	53	**45**
Nitrogen (N)	96	87	70	48	**4**
Phosphorus (P)	7	4	2	0,4	**0.5**
Suspended solids, 1,000 tons	0.9	0.9	0.9	0.5	**0.05**
Metals (Hg+Cd+Pb+Cr+As+Cu+Ni+Zn)	2	2.3	2.3	1.2	**0.3**
RELEASES INTO AIR, TONS					
Particulates	128	40	69	63	**58**
Sulfur dioxide (SO_2)[2]	3,036	1,813	1,957	1,801	**1,015**
Nitrogen oxides (NO_2)[3]	1,152	298	372	323	**263**
Carbon dioxide (CO_2), 1,000 tons	805	224	223	205	**186**
Volatile organic compounds(VOC)[4]	130	171	182	177	**174**
Volatile inorganic compounds (VIC)[5]	24	23	144	142	**43**
WASTE[6], TONS					
Hazardous wastes, total	5,290	6,497	8,073	9,554	**7,109**
Off-site landfill	1,316	2,161	2,738	3,269	**2,621**
Off-site incineration	1,933	2,332	3,815	3,709	**3,271**
On-site landfill	35	35	0	0	**0**
Other treatment	2 ,006	1,969	1,521	2,576	**1,217**
Non-hazardous wastes, 1,000 tons	654	526	639	299	**44**
NATURAL RESOURCES					
Fuel consumption, ktoe	242	92	107	89	**54**
Fuel consumption as raw material, ktoe[7]	81	93	92	83	**105**
Purchased electricity, TJ	9,594	10,420	11,082	10,857	**9,718**
Purchased heat, TJ	1,177	6,754	7,340	6,497	**4,327**
Cooling water volume, million m^3, approx.	202	213	219	199	**159**
Wastewater volume, million m^3, approx. [8]	5.4	5.7	6.1	6	**1.4**
SAFETY					
Number of accidents[9] per million working hours	8.4	6	6.5	4.4	**3.5**
REFERENCE DATA, EUR MILLION					
Group net sales	1,994	2,522	2,810	2,832	**2,500**
Environmental capital expenditure	7.4	12.2	30.2	7.2	**2.3**
Environmental operating costs	33.3	35.4	39.1	30	**14.9**
Total environmental costs, % of net sales	2	1.9	2.5	1.3	**0.7**

1 Estimate. In this case, partly caused by inorganic discharges.
2 All sulfur compounds calculated as SO_2.
3 Nitric oxide and nitrogen dioxide calculated as NO_2.
4 VOC is a sum of volatile organic compounds as defined in EU Directive 1999/13/EC
5 Sum of ammonia, hydrogen chloride and six other simple inorganic compounds.
6 Reported figures do not include on-site incineration, waste which is further processed into products at the sites, or sold as a co-product to external recycling. Figures are on wet basis.
7 2009 increase mainly due to a calculation correction at one site.
8 Wastewater volumes to external treatment are excluded.
9 Accidents causing an employee absence at least one day (LTA1).

INDEPENDENT ASSURANCE REPORT

TRANSLATION FROM THE ORIGINAL FINNISH REPORT

TO THE BOARD OF DIRECTORS OF KEMIRA OYJ

We have been engaged by Kemira Oyj (hereafter: Kemira) to provide limited assurance on Kemira's environmental and occupational safety information from the reporting period 1.1.–31.12.2009 presented in Kemira's separate Environmental Report 2009, as well as in Kemira's Annual Report 2009 on pages 44-45, and under headline "Kemira has safety at heart" on page 42 (hereafter: "environmental reporting").

The data and assertions included in the environmental reporting remain the responsibility of the management of Kemira. Moreover, the management of Kemira is responsible for preparing and presenting the environmental reporting in accordance with the *Finnish Accountancy Standards Board's recommendation on the recognition, measurement and disclosure of environmental issues in the annual accounts and annual reports of companies* (2006), as well as for preparing and presenting the statistics presented in connection with the environmental reporting in accordance with the European Chemical Industry Council's (Cefic) *Health, Safety and Environmental Reporting Guidelines* (2006), where relevant to Kemira's operations.

Our responsibility is to carry out a limited assurance engagement and to express conclusion on the environmental reporting subject to the assurance based on the work performed. We have conducted the engagement in accordance with the Finnish Institute of Authorized Public Accountants' Standard 3000 *Assurance Engagements other than Audits or Reviews of Historical Financial Information.* Amongst others, this standard requires that the assurance team members possess the specific knowledge, skills and professional competencies needed to understand and review the Environmental Information, and that they comply with the requirements of the IFAC Code of Ethics for Professional Accountants to ensure their independence.

The evaluation criteria used for our assurance are the *Finnish Accountancy Standards Board's recommendation on the recognition, measurement and disclosure of environmental issues in the annual accounts and annual reports of companies* (2006); and the Cefic *Health, Safety and Environmental Reporting Guidelines*, as applied to Kemira's environmental reporting.

LIMITATIONS OF THE ENGAGEMENT

Information related to environmental and safety is subject to inherent limitations applying to data accuracy and completeness, which are to be taken into account when reading our assurance report. The presented environmental reporting is to be considered in connection with the explanatory information on data collection, consolidation and assessments provided by Kemira. Our assurance report is not intended for use in evaluating Kemira's performance in executing the environmental or safety principles Kemira has defined. To assess the financial state and performance of Kemira, the Kemira audited Financial Statement for the year ended 31 December 2009 is to be consulted.

THE WORK PERFORMED IN THE ENGAGEMENT

Our assurance procedures are designed to obtain limited assurance on whether the information subject to the assurance engagement is presented in all material respects in accordance with the *Finnish Accountancy Standards Board's recommendation on the recognition, measurement and disclosure of environmental issues in the annual accounts and annual reports of companies* (2006); and in accordance with the Cefic *Health, Safety and Environmental Reporting Guidelines*, as applied to Kemira's environmental reporting.

A limited assurance engagement consists of making inquiries, primarily of persons responsible for the preparation of the sustainability information presented, and applying analytical and other evidence gathering procedures, as appropriate. The evidence gathering procedures mentioned above are more limited than for a reasonable assurance engagement, and therefore less assurance is obtained than in a reasonable assurance engagement.

IN OUR ENGAGEMENT, WE HAVE PERFORMED THE FOLLOWING PROCEDURES:

- Interviews with the people responsible for the preparation of the report;
- An assessment of data management processes, information systems and working methods used to gather and consolidate the presented Sustainability Information, and a review of Kemira's related internal documents;
- Comparison of the presented environmental reporting to underlying rules of procedure, management and reporting systems as well as documentation;
- A review of the presented environmental reporting, including the performance data and assertions, subject to the engagement, and an assessment of information quality and reporting boundary definitions;
- Testing of data accuracy and completeness through samples from the Group's information systems and original numerical information received from Kemira's companies;
- Visits to two sites selected on the basis of a risk analysis taking into account both qualitative and quantitative information.

CONCLUSIONS

Based on the assurance procedures 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 material respects, in accordance with the criteria applied to the assurance engagement.

HELSINKI, 5 MARCH 2010

KPMG OY AB

PEKKA PAJAMO
AUTHORIZED PUBLIC ACCOUNTANT

NINA KILLSTRÖM
CORPORATE RESPONSIBILITY ADVISOR

4 FACTS ON WATER

Unicef determines that all humans should have the right to 40 liters of water per day, available within a 1 km distance of their home.

Water use varies. 105 liters is the average daily per capita consumption of domestic water in India. The corresponding figure for France is 287 liters and 594 liters for USA. Source: Hoekstra & Chapagain (2008)

An investment of 1 USD in water management saves 4 to 12 USD in healthcare costs. Source: World Health Organization

Kemira estimates that the global chemical market related to water treatment, process efficiency and stability in water-intensive industries is worth approximately EUR 25 billion.

kemira

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