



**"For us, the environment is not only
an important value but also a competence
and growth area."**

AARNO SALMINEN
Responsible for environmental protection



Environment

“Traditional environmental protection was not involved with corporate values as much as it was with those of society. The substantial investments in environmental protection made over the last decades were reactions or an anticipation of legislative changes. By contrast, voluntary environmental protection and market-based environmental business, which came into the fore in the 1990s, have a bearing on each of Kemira’s values. And when we look at the Group’s areas of competence, the environment turns up just about everywhere. Environmental services and solutions are on the increase in all Kemira’s areas of operations. Innovations and profitable areas are being sought within water chemicals, environmental chemicals for the pulp and paper industry, recycling and environmentally sound paints. This is happening in cooperation with customers, research institutes and all the Kemira Group’s units.

Of the larger chemicals companies, Kemira stands out as the one that has sought environment-driven growth. We

have continually measured the proportion which environmental business represents within our net sales. Nowhere in the world is there a precise definition of environmental business. Accordingly, we have agreed what we consider to be environmental products and we’ve kept the criteria the same year after year. The environmental business has not been spun off into any separate entity. Instead, at all our main companies there are environmentally-driven products which we have counted together in preparing our environmental reports. This has been a way of profiling ourselves and showing how important environmental matters are in our business operations.

Kemira has also been a forerunner in reporting openly and reliably on its environmental affairs. The industry has gained an audience that follows environmental reporting and keeps the environmental viewpoint in the public’s eye by comparing reports and granting them awards. Concurrently, special mutual funds which highlight ethical values have been established. Our environmental reports have also been a way of responding to the challenge of ethical investing.

Over the past couple of years, the life cycle and environmental aspects of products have gained prominence. A new aspect of chemicals legislation too is environmental hazards of chemicals, which previously was not well defined.

The chemicals dialogue and new legislation will most likely lead to a huge undertaking in the area of testing existing products. Let us hope this will not slow down the environment-driven development work.

Environmental protection is driven by values – values related to society, companies and, of course, individuals. The dialogue that was set in motion in the environmental area is expanding into the area of corporate social responsibility and responsibility for its employees’ well-being. It is placing a company’s values even more squarely in the spotlight.”



Environmental report



Kemira continued to develop its businesses in line with the chosen strategies, which include growth in environmentally driven businesses. In addition to acquisitions, research and development was intensified in these fields to strengthen key competencies. At the same time, the business divestments announced earlier resulted in substantially reduced environmental releases.

A total of 25 production sites now have certified environmental management systems in place (see p. 22). In 2001, seven new sites obtained ISO 14001 registration, including the Agro's main sites in Finland. Kemira's safety record improved, and health and safety principles are being sharpened. The role of product stewardship will be strengthened due to both external and internal developments.

Highlights on activities at the sites

Chemicals. The Helsingborg plant in Sweden placed in use an activated carbon filtration and scrubbing system to eliminate releases of organochlorine compounds, which were unexpectedly discovered during the previous year.

The newly acquired paper chemical plant in Krems, Austria, improved odour control of the crude tall oil unloading

station. The Swiecie plant in Poland developed safety and environmental management systems.

In Finland, the Oulu plants reduced dust emissions by replacing the electric filter of the power plant. Plans to improve soot management were also outlined.

At the Kookkola plants, the activated carbon filtration system installed in March has reduced effectively organic impurities in the hydrochloric acid and all environmental mass flows further downstream. An external expert study found no significantly elevated concentrations of organochlorine compounds in the soil or sea sediments outside the plant area. A new environmental permit stipulates that the on-site lagoons for filtrate sludge must be appropriately closed or isolated before November 2007. In addition, the plant completed the removal of surface soil contaminated by mercury.

In the Kemwater business unit, several production plants enhanced energy efficiency, whilst many others upgraded their storage safety. In Sweden, Kemwater Närke installed a new scrubbing system for removing hydrogen chloride. Use of recycled raw material was boosted, for instance, in the Kemwater plants in the Netherlands and Italy.

The report deals with Kemira Group companies in line with financial reporting and has been prepared in accordance with:

- CEFIC (European Chemical Industry Council): Health, Safety and Environment Reporting Guidelines. November 1998.
- Commission recommendation on the recognition, measurement and disclosure of environmental issues in the annual accounts and annual reports of companies. European Commission, 2001/453/EC.
- "Communication on the Interpretation of Certain Articles in the Fourth and Seventh Accounting Directives". European Commission, 98/C 16/04.

The data presented in this report has been compiled from 67 production plants and sources globally. Whilst every effort has been made to ensure that the information is neither incomplete nor misleading, it cannot be considered as reliable as the financial data of the Annual Report.

The Pori plant reduced sulphur emissions further by expanding the activated carbon adsorption unit of the titanium dioxide plant. Construction of the new gypsum landfill was completed, and a pilot unit was built to boost the utilization of solid by-products. The site also had a year of the lowest observed incident frequency.

Paints and Coatings. The acquisition of Alcro-Beckers increased the business activities of Paints and Coatings substantially. The new paint production plants are located in Sweden, Poland and Germany.

The Tikkurila plants in Vantaa, Finland, minimized hazardous waste generation by increasing solvent re-use and treatment of water-based wastes. The Lövhölm plant in Stockholm, Sweden, continued a project for recycling spill and wash water and for re-using the treated waste water in its own production. Environmental risk assessments focusing on soil contamination were conducted at several Paints and Coatings sites.

Agro. The Uusikaupunki plant invested close to EUR 1 million for reducing nitrogen effluents into the waste water. This confirms compliance with the new permit, specifying tighter limits on nutrient releases. A fairly large invest-

ment project was also launched to improve the plant's internal efficiency, recycling and safety.

The Harjavalta plant installed two pressing units for the treatment of packaging waste. Dust emissions from the aluminium sulphate plant were reduced by filtration.

At the Siilinjärvi plant, enlargement of the gypsum storage area was completed. The frequency of accidents and the number of working days lost due to injuries were the lowest observed.

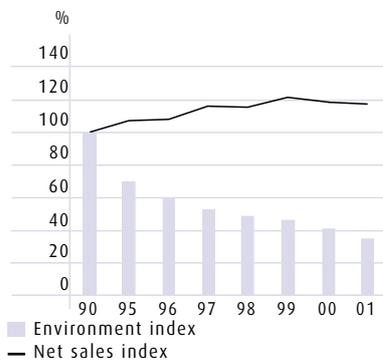
The Kedainiai plant in Lithuania installed a new fluorine gas absorption system to reduce air emissions. Energy efficiency and storage conditions were also improved.

The Fredericia plant in Denmark assessed noise reduction options and soil contamination. The authorities issued new requirements for reducing cadmium impurities into the municipal sewer.

The Ince plant in Chester, the UK, built new safety bunds for the nitric acid and phosphoric acid storage tanks. In Belgium, the Terte plant improved energy efficiency in nitric acid production and updated the noise survey of the site. Soil remediation activities continued at Willebroek and Bataille.

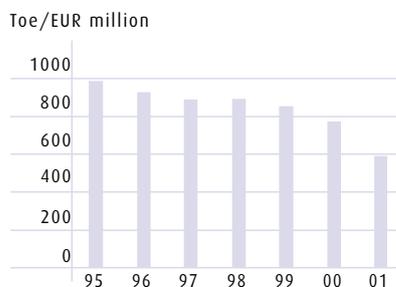


Environmental load and net sales



The environment index consists of seven different releases and of non-hazardous waste.

Energy consumption divided by net sales



Environmental report



Environmental business

Sales of environmentally benign products and services amounted to approximately EUR 352 million, up 4 % on the previous year. A decade of continual growth has more than doubled this business sector within Kemira.

The biggest contribution to growth came from water treatment chemicals. In addition to organic growth, Kemwater made acquisitions in Spain, Italy, China and Russia (early 2002). The Kemira competence centre for water research in Oulu, Finland focuses on new applications and longer-term business development. The recycling competence centre in Helsingborg, Sweden, investigates business options in sludge treatment and selectively recycled raw materials.

Sales of environmental chemicals, including hydrogen peroxide for pulp and paper applications, were impacted by the downturn in the industry. By contrast, growth continued in environmentally benign de-icing and detergent products. Sales of environmental equipment decreased slightly.

Sales of products derived from waste or by-products increased by about 10 %. This was due mainly to good markets for calcium sulphate pigment. An investment to expand the production

in Siilinjärvi, Finland, was launched in March.

Agro increased its sales of recovered carbon dioxide. Eco-products, such as organo-mineral fertilizers and biocontrol products, also showed a favourable sales trend.

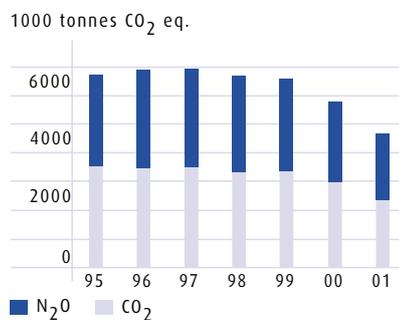
Paints and Coatings expanded substantially its sales of environmentally benign paint and coating applications. In Finland alone, these sales are now close to EUR 50 million. The number of applications grew significantly in step with the integration of Alcro-Beckers, especially by virtue of the extensive range of environmental products available in Sweden.

Industrial Coatings continued its environmental product development efforts. A new growth area was the coating of metal drums, notably in Finland and the UK. A further boost for water-soluble or solvent-free industrial applications is expected when the EU VOC directive comes into force.

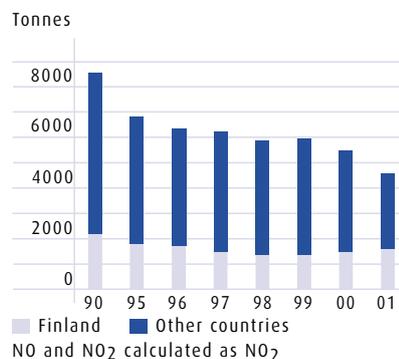
Product safety

Kemira participated actively in the chemical industry's voluntary ICCA HPV Programme, and has given commitments to testing consortia for five substances. The first comprehensive EU risk assess-

Greenhouse gas emissions



NO_x emissions



ment in which Kemira is involved significantly – hydrogen peroxide – reached the finalization phase. The draft conclusions mention process and logistics safety and user information as areas of improvement in the life-cycle of this environmentally sound chemical.

Kemira started development of modern IT tools for the global product safety expert network. Expert resources and networking were also strengthened.

The life cycle approach is used increasingly for assessing the environmental benefits, impacts and development options of Kemira's products. In-depth life cycle studies of five major product groups and covering about 13 applications were finalized.

Environmental statistics

The environmental data presented here has been compiled from 67 production plants globally, with three new medium-sized plants and some smaller units reporting for the first time in 2001. The closure of two major fertilizer plants in the Netherlands is also fully reflected in the figures for 2001.

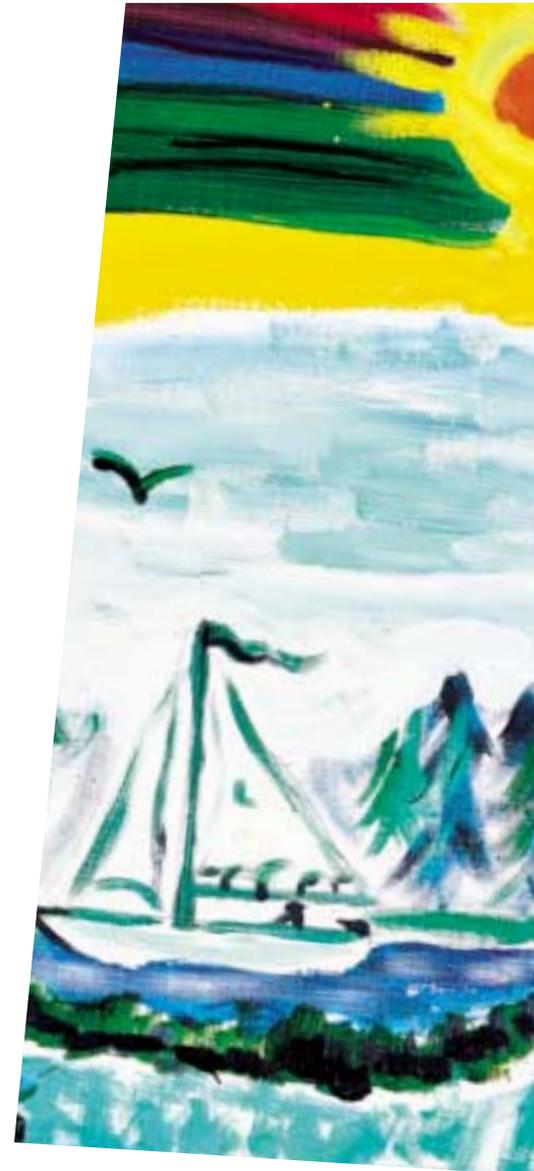
With virtually no change in the Group's turnover, the overall production volumes decreased by about 13% due to plant closures. Total energy consumption

decreased by one quarter, a very significant decrease that was largely attributable to the energy intensity of closed operations.

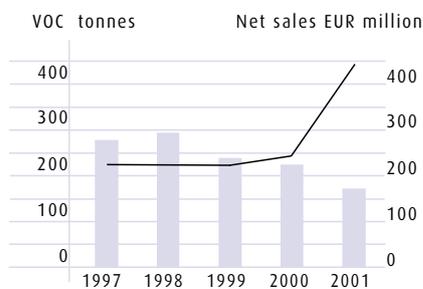
The order-of-magnitude drop in many of the the Group's waste water releases is explained by the stopping of phosphogypsum discharges at Pernis, Holland. This was a major source of phosphorus, solids and heavy metal releases across the Group. The closure of the Rozenburg nitrogen fertilizer operations contributed to a more moderate decrease in nitrogen discharges.

The emissions of common inorganic gases were also slightly lower than before. The biggest reduction was observed in nitrogen dioxide and carbon dioxide due to the closed ammonia and nitrogen fertilizer operations. The Group total for volatile organic compound emissions was also lowered. Emissions from the acquired paint plants and pulp and paper chemical plants are minor, and were outweighed by emission reductions at Paints and Coatings' sites in Finland and the UK.

The situation was more stable within waste management. On-site piling up of by-products and non-hazardous waste increased marginally due to higher production levels at key sites. The quantities

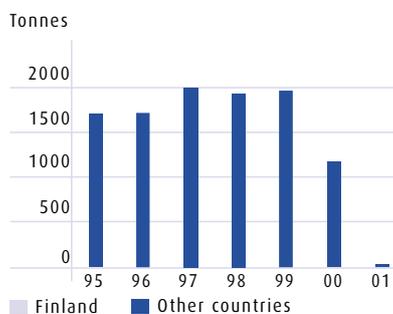


Paints & Coatings VOC emissions and net sales



■ VOC
— Net sales

Phosphorus discharges



Environmental report



of hazardous waste sent for external treatment diminished, mainly as a consequence of recycling efforts.

Investments and operating costs

Capital expenditures on environmental projects amounted to EUR 13.5 million, or 4.5% of all investments. An increase of 50% from the low figures in 2000 was due to several medium-sized investments, mainly for air pollution control.

Environmental operating costs totaled EUR 42.9 million, up 9% from the previous year. The growth is attributable to the acquisitions completed and to environmental investment projects, as well as to production increases at some plants.

Environmental costs totaled EUR 56.4 million, or 2.3% of the consolidated net sales. Major environmental projects are not pending.

In addition, the environmental taxes and fees amounted to approximately EUR 10.8 million, mainly in the form of carbon taxes included in raw material prices, and landfill taxes or fees. The compensations paid for environmental damage were EUR 0.2 million, for the most part based on specific water protection compensation schemes applied to industrial activities in Finland.

Safety and occupational health

The overall safety performance of the Group showed positive development. There were no major industrial accidents, nor any fatal incidents. The frequency of lost-time incidents (LTA 1) was reduced to the lowest observed level, 10.4 accidents per million working hours, as a result of active management and portfolio changes. Safety management, rating systems and incident reporting were developed at many sites.

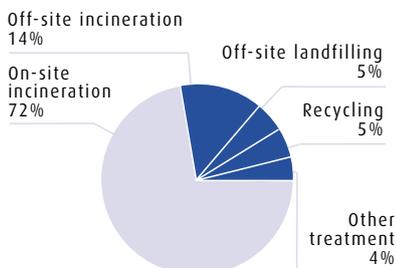
Of the reported incidents, the following cases may have caused some local concern:

On January 13, the Harjavalta plants in Finland suffered a leak of 25 m³ of iron chloride into the sewer and on into the Kokemäki River. The chemical is used for water treatment and no significant harm to the environment was observed.

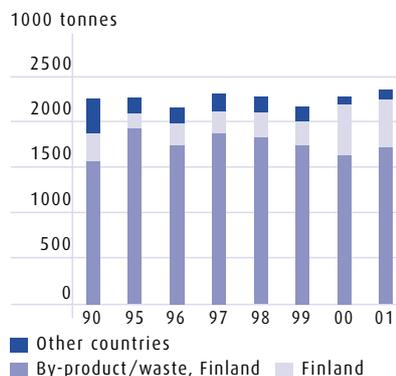
On May 4, a fire took place in one pressurized reactor of the Kemwater plant in Rozenburg, the Netherlands, causing limited property damage and interruption of business.

On July 7, about 0.5 tonnes of organic working solution at the hydrogen peroxide plant was occasionally released into the sea in Helsingborg, Sweden. About 90% of the spill was collected by the fire brigade, and a risk assessment

Hazardous waste treatment in 2001



Non-hazardous waste generation



confirmed that no significant environmental damage was caused.

In addition, limited leakage of hydrochloric acid into the air or soil took place at Helsingborg and at the Kemwater's plant in Yixing, China.

All these incidents have been subjected to internal investigations and insurance procedures, and corrective action has been taken.

Environmental risks, liabilities and legal cases

See the financial disclosure for this information (Notes to the Consolidated Financial Statements, Note 25).

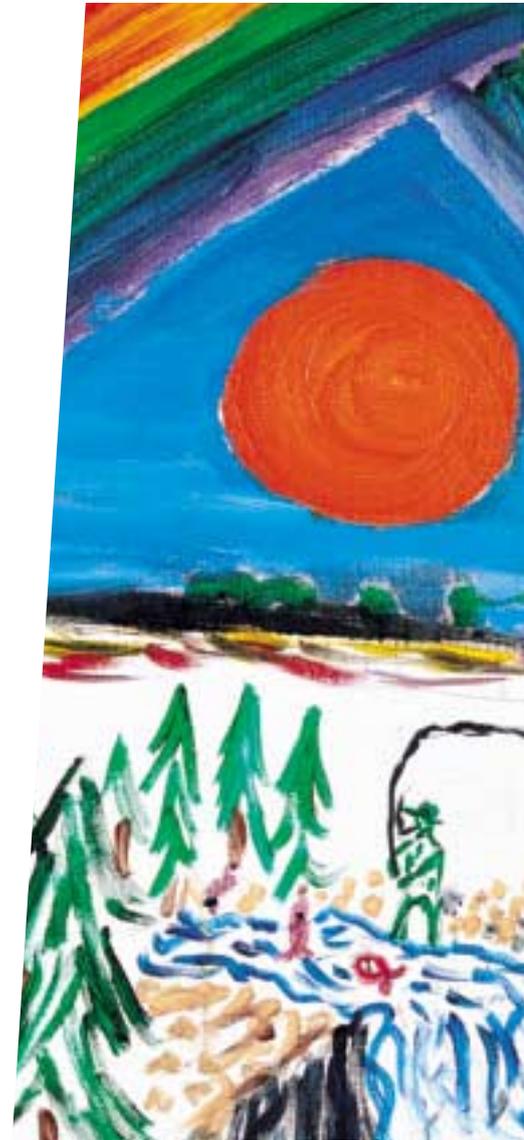
Social responsibility

A renewed corporate Code of Conduct is being finalized and will be discussed with the personnel representatives, including the Kemira European Forum. The Group management manual and policies will also be amended to put more emphasis on values and social responsibility. Kemira's environmental reporting obtained again a good rating in the annual intercomparison in Finland.

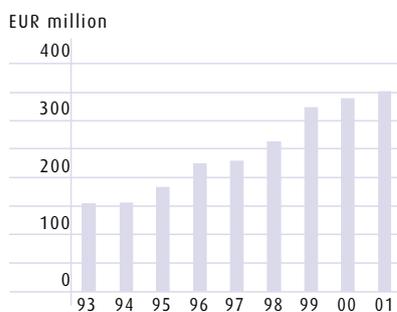
Paints and Coatings launched a public Social Responsibility programme in August. The programme outlines values, principles and targets for all sectors of

corporate responsibility. These will be developed further in the business units.

A review of the rich fauna and flora of the rehabilitated gypsum pile was published by the Uusikaupunki plant in Finland. The Kemira Pigments plant in Pori, Finland, opened an environmental exhibition at the local Nature House Arkki.



Growth of environmental business



Environmental capital spending and operating costs





Environmental and safety management systems at production sites in 2001

Site	Environment	Safety
Chemicals		
Oulu, Finland	ISO 14001 ¹	DNV ISRS ²
Kokkola, Finland	ISO 14001	DNV ISRS
Pori, Finland	ISO 14001, EMAS ³	DNV ISRS
Vaasa, Finland	ISO 14001	
Helsingborg, Sweden	ISO 14001, EMAS	
Lauterbourg, France	ISO 14001	
Fredrikstad, Norway	ISO 14001	
Flix, Spain	ISO 14001	DNV ISRS
Kvarntorp, Sweden	ISO 14001	
Krems, Austria	ISO 14001	Other
Swiecie, Poland	ISO 14001	
Rozenburg, The Netherlands	ISO 14001	Other
Ulsan, Korea	ISO 14001	
Esbjerg, Denmark	ISO 14001	
Paints and Coatings		
Vantaa, Finland	ISO 14001, EMAS	
Tallinn, Estonia	ISO 14001	
Riga, Latvia	ISO 14001	
Stockholm + Nykvarn, Sweden	ISO 14001	
Ansbach, Germany	EMAS	
Agro		
Uusikaupunki, Finland	ISO 14001	DNV ISRS
Harjavalta, Finland	ISO 14001	DNV ISRS
Siilinjärvi, Finland	ISO 14001	DNV ISRS
Ince, UK		DNV ISRS
Hull, UK	EMAS	
Tertre, Belgium	ISO 14001	DNV ISRS
Fredericia, Denmark	ISO 14001	DNV ISRS

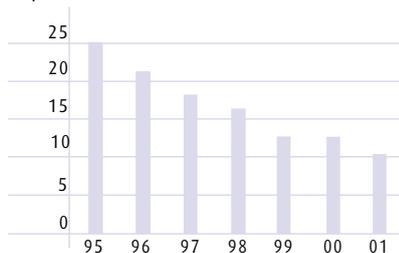
¹ International Organization for Standardization, Environmental management systems.

² Det Norske Veritas, International Safety Rating System.

³ European Union, Eco-Management and Audit Scheme.

Lost-time incidents

Per million working hours at production sites



Environmental data for the Kemira Group

	1990	1998	1999	2000	2001
Releases into water, tonnes					
Chemical Oxygen Demand (COD) ¹	..	5,694	5,397	749	168
Nitrogen (N)	2,500	1,163	1,019	948	718
Phosphorus (P)	4,952	1,933	1,967	1,176	17
Suspended solids, 1,000 tonnes	934	799	773	403	1.2
Metals (Hg+Cd+Pb+Cr+As)	49	10	5.3	0.9	0.6
Metals (Hg+Cd+Pb+Cr+As+Cu+Ni+Zn)		48	66.8	6.8	3.7
Releases into air, tonnes					
Particulates	1,950	896	936	895	854
Sulphur dioxide (SO ₂) ²	23,138	5,630	5,687	4,359	4,272
Nitrogen oxides (NO ₂) ³	8,546	5,840	5,951	5,455	4,583
Carbon dioxide (CO ₂), 1,000 tonnes		3,326	3,344	2,992	2,343
Volatile organics (VOC) ⁴	..	374	321	298	240
Volatile inorganics (VIC) ⁵	..	3,152	2,594	2,663	2,671
Waste⁶, tonnes					
Hazardous wastes, total	8,669	8,795	26,092	5,719	4,737
– Off-site landfill	..	5,117	19,479	518	1,103
– Off-site incineration	..	2,926	5,630	4,292	2,829
– On-site landfill	..	375	118	0	2
– Other treatment	..	377	864	909	803
Non-hazardous wastes, 1,000 tonnes	2,254	2,278	2,170	2,277	2,352
Natural resources					
Fuel consumption, ktoe ⁷		1,777	1,773	1,571	1,160
Purchased electricity, TJ		5,700	5,800	5,300	4,400
Total, ktoe		2,146	2,150	1,913	1,446
Cooling water volume, million m ³ , approx.		393	398	387	377
Waste water volume, million m ³ , approx.		82	76	34	16
Safety					
Number of accidents ⁸ per million working hours		16.3	12.7	12.7	10.4
Reference data, EUR million					
Group net sales	2,087	2,413	2,526	2,486	2,454
Environmental capital expenditure	31.1	15.0	12.6	8.9	13.5
Environmental operating costs	32.3	48.8	52.6	39.3	42.9
Total environmental costs, % of net sales	3.0	2.6	2.6	1.9	2.3

¹ Estimate. In this case, mainly caused by inorganic discharges, and hence not a very relevant parameter for the Group.

² All sulphur compounds calculated as SO₂.

³ Nitric oxide and nitrogen dioxide calculated as NO₂.

⁴ VOC is a sum of volatile organic compounds.

⁵ Sum of ammonia, hydrogen chloride and six other simple inorganic compounds, mostly ammonia in this case.

⁶ Waste as defined in EU legislation. Reported figures do not include mining by-products, 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 1,000 tonnes of oil equivalent. Includes fuel as a raw material.

⁸ Accidents causing an employee absence at least one day (LIA1). Includes figures for production sites only.

Environmental report

Verification statement

At the request of Kemira, we have reviewed the basis of the "Kemira Group Environmental Report 2001". The report is the responsibility of and has been approved by the Board of Directors of Kemira Oyj. The inherent limitations of completeness and the accuracy of the data are set out in the report.

Our review has consisted of the following procedures:

- making enquiries of management responsible for compiling the report;
- an examination of relevant supporting information;
- review in more detail of the systems for gathering and reporting environmental data at operating level at one site outside Finland and two sites in Finland, selected by us.

Based on our review we are assured that:

- the statements made in the report are supported by underlying information;
- the data has been properly collated from information provided by the sites;
- for the three sites visited, data has been properly extracted from their information systems.

The report has been prepared in line with the CEFIC Health, Safety and Environmental Reporting Guidelines, excluding information on occupational illnesses and distribution incidents. Kemira's approach to reporting continues to be in line with the European Commission interpretative communication concerning certain articles of the fourth and seventh Council Directives on accounting and, where appropriate, meets the requirements of International Accounting Standard IAS 37 Provisions, Contingent Liabilities and Contingent Assets. It is our opinion that the Kemira Group Environmental Report gives, in all material respects, a fair and balanced view on the group's environmental performance.

Helsinki, 12 February 2002

KPMG WIDERI OY AB

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