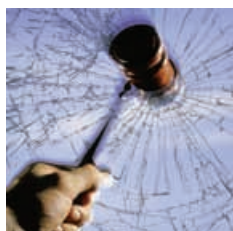


Sydsvenska Kemi AB (publ) Environmental Report 2004



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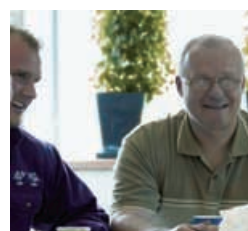
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Photography: Rickard Hansson, Lars-Olof Henriksson, among others

Introduction

The main purpose of the Environmental Report 2004 is to present the Environment, Health and Safety (EHS) work of the Perstorp Group during 2004. The Environmental Report is a complement to the Group's Annual Report, which contains a short summary of EHS work. The EHS section in the Annual Report is primarily for readers with financial interests, while the Environmental Report 2004 addresses a large group of stakeholders, including employees, local residents, customers, suppliers, contractors, environmental authorities, students and other organizations. The Group considers it to be of great value to inform all stakeholders about the ongoing EHS work.

The structure of the Environmental Report is based on a number of main headings and starts with a presentation of the Perstorp Group. This is followed by a presentation of how the company views and leads EHS issues from the management point of view. A more comprehensive presentation of the Group's work on the environment, health and safety is shown under the detailed headings. A separate section describes the Group's communication with the different stakeholders. The environmental report ends with environment-related financial figures and accounting principles.

The environmental impact of the Perstorp Group's operations consists mainly of emissions to the air and water. The operations also generate waste and noise. Each production unit contributes to the overall impact in varying degrees and therefore has its own EHS objectives, adapted to the prevailing conditions.

For several years, Perstorp has been using a computer-based system (EHS Frango) to collect and store environmental figures to the EHS issues. In addition, a separate database is used to gather annual text information related to the EHS. The Environmental Report 2004 is based on the information from both of these systems.

An annual HR Report is issued by the Group's Human Resources department. The report provides a description of Perstorp's work in personnel-related matters. The topics covered include among other things recruitment, competence development, working environment and health. Read more in the "HR Report 2004".



Perstorp in brief

Perstorp's vision is to be a world leader that creates solutions for customers based on efficient and environmentally sustainable applications in selected niches of organic and polymer industrial chemistry. In 2004 the Group's sales reached around SEK 6.5 billion from production units in eight countries in Europe, North America and Asia. In Sweden, production takes place at Perstorp, Stenungsund and Nol. During the year the Group had an average of 2,091 employees who are distributed around the world as follows: Sweden (51%), other EU countries (21%), USA (15%) and Asia (13%).

Sydsvenska Kemi AB (publ), which is controlled by Industri Kapital 2000 Fund, is the parent company of the Perstorp Group. Industri Kapital is one of Europe's leading private equity companies. When acquiring Perstorp in 2001, Industri Kapital's payment included a subordinated debenture loan that is registered with the Stockholm Stock Exchange.

Two business sectors

Perstorp has two business sectors - Specialty Chemicals and Materials Technology - and the company is one of the leading suppliers in the world within several of its selected market segments.

Perstorp is also a leading producer of advanced composite materials for the electricity, building, aerospace and aviation industries.

The *Specialty Chemicals* business sector works with specialty chemical products on markets throughout the world. The Group is the world's largest supplier of various types of polyols (polyalcohols), organic acids and plants and catalysts for the production of formalin.

Perstorp's customers are mainly to be found in the paint and plastic processing industries, and also within the building, automotive and engineering industries.

The business is based on extensive knowledge primarily of aldehyde chemicals and associated areas as well as advanced competence within specific process technologies and applications.

The *Materials Technology* business sector focuses on fiber

reinforced polymer materials for demanding applications within the electricity, building, aerospace and aviation industries. These materials combine light weight with high performance, which means that they are increasingly replacing metals in many areas.

Other Operations include group management and the property services.

Specialty Chemicals is the largest business sector, accounting for 84% of turnover in 2004. Simplification of the company's structure began during the year and the internal service companies are being integrated into the chemicals business as a result. Following the end of the financial year a significant part of the business within Materials Technology has been divested.

Environmentally-adapted products

Perstorp was formed in 1881 in the Swedish town of the same name. Chemicals have been the base for the activities and continuous development has always characterized the business.

Demand is growing for environmentally-adapted and cost-efficient specialty chemicals that have new technological properties. Against this background the company is striving to increase sales through continuing globalization and the development of both new and existing products. Through these efforts Perstorp aims to increase its portion of specialty products and achieve sustainable growth and profitability.



Chemistry is a solution, not a problem

Many people today associate the words chemistry and chemicals with something negative. Meanwhile, our society and to a very great extent life itself are built around, and completely dependent upon, chemical processes and products. The solutions to the great challenges facing us on our planet will be based upon our knowledge and application of chemistry. Those of us who are educated in chemistry or in some way knowledgeable about the chemicals business share a common responsibility to communicate the significance of chemistry and the opportunities it offers. An insight that not everyone has. At the same time we have a great responsibility to use chemistry in ways that are sustainable and safe for both people and the environment.

In recent years the Perstorp Group has been restructured into a business that focuses exclusively on selected niches within specialty chemicals. Our success is dependent on a number of factors, and our ability to handle environment, health and safety (EHS) issues is among the most important. We have therefore identified "the development of environmentally sustainable products and concepts" as one of four main goals for the Perstorp Group. Managing increasing demands connected with EHS issues in a broad sense, is a key factor for our growth and development, not only from a pure emissions and impact perspective, but also for obvious business reasons. Environmental awareness is an opportunity, not a threat!

We have major ambitions on the environmental front, but we face global competition and we must always consider the financial implications and secure our competitive strength. We can never afford to endanger the environment, but progress must be made by balancing the various factors; environmental concepts, customer demands and economic realities. As a business and as individuals we are far from perfect, but I consider Perstorp to have moved a long way in the right direction.

This year's environmental report aims to give an overview of the Group's activities and its impact in the environmental field. I encourage our employees and other interested parties to read it and hopefully suggest improvements, not just concerning the report itself but also in view of the way in which we work.



Lennart Holm,
President and CEO



Jan Petersson,
Head of environment, health and
safety

Active environmental work to achieve sustainable solutions over the long term

Environmental work is a natural part of Perstorp's business. Despite implementing many environmental measures over the years, many challenges still remain. Key areas for the future include energy utilization and reducing waste. Perstorp also has considerable ambitions concerning improving the working environment and thus reducing incidents and work-related injuries.

Specialty Chemicals

Due to production increases, VOC emissions to air increased slightly in 2004 compared with 2003. Meanwhile, emissions of sulfur dioxide have been cut significantly due to successful process changes at the Vapi unit in India. Leaks of HCFCs increased, however. Preventive maintenance and further investment will correct this situation. Energy consumption has followed the increase in production. The same applies to waste. The Perstorp productivity project, *nEverest*, will now focus on energy and waste issues. The number of accidents that caused one day or more of sick leave fell from 26 in 2003 to 15 in 2004. The aim is to reduce this further significantly.

Materials Technology

Production increases in 2004 led to marginal increases in emissions to air. Leaks of HCFCs have been cut in half compared with 2003 due to focused maintenance measures. Energy consumption is virtually unchanged. The amount of hazardous waste has been virtually halved and non-hazardous waste remains at the same level as in 2003. The number of environmental accidents was reduced from 13 in 2003 to 5 in 2004. The same positive picture applies for working environment accidents that caused one day or more of sick leave, which fell from 32 in 2003 to 16 in 2004.



Specialty Chemicals

Specialty Chemicals is one of the world's leading suppliers within several market segments. Most products are sold throughout the world, with the largest markets in Europe and USA and an expanding market share in Asia.

The business sector has sales of around SEK 5.5 billion and 1,447 employees. The largest product groups are basic and specialty polyols, organic acids, oxo alcohols and plasticizers, which together make up around 75% of the business sector's turnover.

Perstorp produces specialty chemicals at ten units in eight countries. The largest units are at Perstorp and Stenungsund, Sweden, at Bruchhausen, Germany, and at Toledo (OH), USA. Each unit usually includes several specialist plants, which is why the total number of production plants within the Group exceeds 40.

Most of the products are intermediates in other products produced by customers mainly within the chemical, coating and plastic-processing industries, but also within the building, automotive and engineering industries. Around two-thirds of sales are within the chemicals industry, with the paint industry, via the resin industry, as the single largest user. Applications are also to be found within the farming, food and other industries.

Around two-thirds of raw materials are crude oil or natural gas, with propylene and methanol as the main materials. Most of production is carried out using efficient, environmentally-adapted processes based on unique technologies developed by the company. Many raw materials that are essential for production, including various aldehydes such as formaldehyde, butyraldehyde and propionaldehyde, are produced internally, which makes a strong contribution to the company's competitiveness and its capability to develop new products.

The main product and application areas are:

Basic polyols

Perstorp's range of basic polyols focuses primarily Penta (pentaerythritol), TMP (trimethylolpropane), Neo (neopentyl glycol) and film-formation chemicals. These products are used mainly to produce resins for the paint industry, but are also used in the production of glue, plastic additives, lubricants and other chemical products.

Specialty polyols

Specialty polyols are developed for more specific applications such as water-based or UV-tempered paints for electronic

products such as mobile phones and screens and also for the furniture and automotive industries to achieve a high gloss finish. A large and expanding application for specialty polyols is synthetic lubricants such as those used for compressors in freon-free refrigeration systems.

Formalin technology (plants and catalysts for production of formalin)

Perstorp is a world-leading supplier of plants and catalysts for the production of formalin. Customers include the world's largest chemical, resins and board producers in over 40 countries.

Organic acids

The range of specialty chemicals includes a number of organic acids for various applications, primarily 2-ethylhexanoic acid, propionic acid and formic acid.

2-ethylhexanoic acid is used as an additive in safety glass and in corrosion inhibitors, i.e. it is added to glycol, for example, to protect against rust. Propionic acid and formic acid are used as raw materials in the production of products mainly for the farming and leather industries.

Oxo-alcohols and plasticizers

Perstorp is one of Europe's largest and most differentiated producers of oxo-alcohols, which are synthetically produced alcohols. Oxo-alcohols are used for, among other products, waterborne coatings, biologically degradable lubricants and as a fuel additive to increase combustion efficiency in diesel engines. Plasticizers are also made for PVC plastics, medial DEHP (diethyl hexyl phthalate) products, plastic carpets in wet areas and electric cable insulation.

Food & Feed products

The agricultural and food industry are growing application areas for several of Perstorp's products such as formic acid, propionic acid, calcium formate, sodium formate and sodium propionate. The range includes antibacterial feed additives, silage agents used to conserve animal feed and various acid mixtures used to conserve grain.



Materials Technology

Within Materials Technology, the Perstorp Group focuses on advanced materials for industrial customers. These materials include fiber-reinforced polymers for demanding applications primarily within the electronics, building, aerospace and aviation industries. The special features of these materials are that they combine low weight with high performance, which means that they are increasingly replacing metals in many applications.

Products are based on the Group's core technologies within thermoset chemistry and fiber-reinforced resins. These products are developed continually for new applications and to meet growing demands for productivity, quality and environmental adaptation.

The customers of Materials Technology are based primarily in Europe and USA, but are also in Asia. Activities are run by the Engineering Materials business area and in the past financial year they were organized within three business units: Moldable Composites, Advanced Composites and Compounds. In 2004 the business area had sales of SEK 1,032 million and 549 employees.

Following the end of the financial year, activities within Moldable Composites were divested. Advanced Composites and Compounds remain within Materials Technology.

Advanced Composites

Advanced Composites comprise the subsidiaries, YLA and CCS, both in USA and both focusing mainly on the aerospace and aviation industries. The business units are leading suppliers within narrow niches on these markets, which are mainly in USA. The companies have especially strong positions within satellite structures based on carbon-fiber reinforced composite materials.

The aerospace and aviation industries want new materials that combine low weight with high performance, and this is driving demand on Advanced Composites' markets. YLA has had significant success in the development of new products for high-temperature systems for the aerospace and aviation industries. In 2004, cooperation with the R&D staff at Specialty Chemicals was extended in order to further develop material properties and improve the efficiency of production processes.

Compounds

Within Compounds, Perstorp is a leading supplier on markets for amino-based thermosets in North America and Europe. These products, which are characterized by high durability, heat tolerance and electrical isolation capability, are mainly used for electrical products and interior fittings. Materials with antibacterial properties are also produced for sanitary goods and interior fittings in environments with strict hygiene requirements such as hospitals, hotels, restaurants and other public environments. The production units are based in Sweden, Italy and USA.



Perstorp's environmental, health and safety policy

Perstorp runs and develops its business to become a global leader in selected niches within Specialty Chemicals and Materials Technology. Perstorp focuses on continuous improvements to the environment, health and safety of its processes and products to achieve sustainable development. Perstorp has joined the Responsible Care and UN Global Compact schemes.

The business

Working environment

A safe and sound working environment where employee health is first priority. Stimulation of personal development through interesting duties, cooperation and consideration. Clear-cut division of responsibility, goal-oriented training and open communication.

Environment

Continuous improvements in processes and products to minimize their impact on people and the environment. Caution, a closed-cycle approach and economization of natural resources will characterize the business.

Safety

Top priority for preventing serious accidents through risk analyses, preventive actions, emergency preparedness and long-term technical planning.

Contractors

Suppliers, contractors, consultants and transporters are expected to follow Perstorp's demands concerning environmental work, health and safety, where observance of these demands determines continued involvement.

Customer focus

Product safety

Development of products with improved environmental properties and reduced use of resources for safe use by the customer throughout the entire lifecycle of the product. Up-to-date information to customers about the product's health and environmental properties.

Customers

Long-term customer relations and active collaboration to find environmentally improving and resource-effective solutions for customers' products and processes.

Global contact

Communication

Open communication with the general public, authorities, customers, media and other interested parties.

Authorities

Good cooperation with authorities and good margins concerning applicable legislation.

This revised environmental policy applies to the entire Perstorp Group. Group Management and the line organization are responsible for ensuring compliance with the policy. The management system is available at most of the production sites to ensure a structured work method. Perstorp's work in the environment, health and safety area is published annually in the Group's environmental report.

EHS objectives of the Perstorp Group

In connection with the restructuring of the Perstorp Group in 2004, new objectives were set for Specialty Chemicals and Materials Technology.



The overall objectives for Specialty Chemicals

Working environment and environmental accidents

Specialty Chemicals has a vision of zero accidents. Each unit shall halve the number of work and environmental accidents by the end of 2007 compared with 2004.

Each unit shall also reduce its LTAR figure by >2 to achieve a LTAR <4 in 2005 and a LTAR <2 by the end of 2007.

Comments

LTAR has developed positively for Specialty Chemicals and fell from 10.9 in 2003 to 6.3 in 2004.

Reduced environmental impact

Specialty Chemicals shall establish a detailed program for each production unit in order to reduce consumption of raw materials and energy. This is a central part of the business sector's *nEverest* productivity program.

The overall objectives for Materials Technology

Working environment and environmental accidents

Materials Technology has a vision of zero accidents. In 2005 the business sector shall halve the number of work and environmental accidents compared with 2004. Each production unit also has the goal of halving its LTA figure. The goal is to reduce LTAR in 2005 to <16 in total for the business sector.

The goal for 2005 is zero environmental accidents.

Comments

The LTA figure was 16 in 2003 and 10 in 2004 for the entire business sector, excluding the parts of the operation which were divested during 2005. The LTAR was 44.8 in 2003 and 28.5 in 2004.

LTA = Lost Time Accident, accident at work resulting in sick leave of one day or more

LTAR = Lost Time Accident Rate, number of LTAs per million working hours



Research and development

Perstorp's work on new products is currently focused on supporting the development of more environmental-adapted chemical products on the market. Key market segments in which Perstorp is active include environmentally and technologically attractive concepts for the paint and thermoplastics industries, attractive solutions for agricultural chemicals, including animal feed concepts, and the plasticizers' segment for, among other applications, safety glass for the car industry. Development towards more environmentally-adapted systems moves very fast and requires significant research and development resources in order to produce new products that both retain the technical characteristics of older systems while meeting ambitious environmental requirements.

The following are examples of areas where Perstorp is developing new products:

New raw material for binding agents in paint systems containing little or no organic solvents

Organic liquid solvents that have been used for decades in paints are now understood to cause serious injuries to people and damage to the environment. The paint industry is therefore working very hard to develop new systems that minimize the use of such solvents. The main role of a solvent in paint has been to reduce viscosity (thickness) so that the paint can be applied easily on a surface. Once the layer of paints is applied the solvent must evaporate so that the paint can dry. The high level of viscosity is due to the binding agent in the paint that gives the paint its hardness and resistance. When solvents cannot be used any more it means that the system must be radically altered. There are several ways to do this, including diluting the paint with water, changing the binding agent so that much smaller amounts of solvent are required to achieve sufficient low viscosity, diluting the paint with low-viscosity components that react chemically with the binding agent rather

than evaporating, or by applying the paint as a powder. New paint systems are currently being developed for all these methods and Perstorp, as a manufacturer of the components used in the binding agents, is investing significant innovation, research and development resources. By developing new chemical products and proposing new paint systems Perstorp can contribute to faster phasing out of traditional solvent-based paints. One example is Perstorp's project aimed at significantly reducing the amount of solvents in alkyd paints. Perstorp has achieved excellent results that more than match the future environmental demands set by the EU concerning VOC emissions.

Additives to the plastic polyvinyl chloride (PVC)

The use of PVC has been debated extensively because it contains two separate additives that have been criticized for their impact on health and the environment. Lead-based stabilizers were used for a long time to counteract thermal breakdown of the plastic during processing. These stabilizers remained in the plastic until it was deposited as

landfill or burnt, whereupon there was a risk of the lead entering the environment. New stabilizer systems have now been developed that contain no lead and are based on relatively harmless materials such as calcium and zinc. However, these systems cannot fully replace lead-based stabilizers. However, combined with the polyalcohol developed by Perstorp, these

new stabilizers are acceptable alternatives. To achieve the same technical performance as lead-based products, the right organic acids must be chosen, including the 2-ethylhexanoic acid, which reacts with metals, along with the right combination of polyalcohols. Different PVC applications require different mixes of stabilizers and Perstorp continues to develop competitive products for these applications. The new stabilizers are used today throughout the Western world and are also swiftly replacing lead-based products in Eastern Asia.

The other criticized additive is phthalate-based plasticizers, which are used to shape and bend PVC as a finished product. The amount used can be significant. The most important traditional plasticizers have been based on phthalate acid esters with various alcohols, so-called phthalates. These substances have been criticized as potentially hazardous for humans and the environment. As a manufacturer of phthalates, Perstorp is now working hard to develop new types of plasticizers.

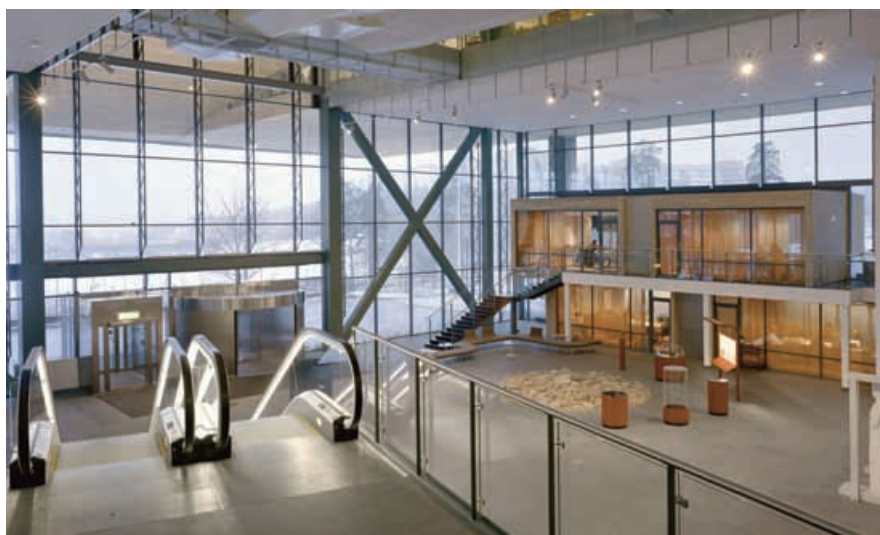
Because the harmful characteristics of Perstorp's products are very small, a large amount of development is focused on improving the products that include components from Perstorp. This work includes chemical synthesis and an assessment of the chemical systems from both environmental and technological point of view. This work is often done in collaboration with the customer that produces the chemical system and has the environmental knowledge about the product that Perstorp lacks. The result of this work includes proposals for new components from Perstorp that contribute to improved environmental properties, or just

as frequently, proposals for a variation to the composition of the customer's system.

The development of new products is characterized by a gradual expansion from lab work to factory-scale production. In the early stages of innovation and development especially, very thorough checks are made to ensure that the proposed product does not have any negative health or environmental aspects. In addition to the internal properties, the proposed application is tested to ensure that the environmental effects are as planned. By eliminating doubtful substances at an early stage there is less risk that dangerous products will reach the market and resources will not be wasted on the wrong products. Development work follows established procedures for the assessment of new products in accordance with Perstorp's environmental management system.

The innovation process within Perstorp is coordinated by R&D, while ideas for new products, applications and manufacturing processes also enter the system from other parts of the organization. In 2003 around 130 new ideas were registered, of which 15% resulted in new R&D activities. In 2004 around 200 new ideas were registered, of which 10% went further to R&D activities. The aim in 2005 is to achieve the same number of new ideas as 2004. The number of new ideas already received in 2005 suggests that the target will be reached.

As regards new patent applications, Perstorp is now bearing the fruit of its intensified R&D activities. In the first quarter of 2005 six new applications for patents were made, compared with five in total in 2004. The aim for 2005 is ten new applications.



Steel components covered with paint containing Charmor in the binding agent mean that, in the event of fire, people have more time to evacuate a building. See the section Product Stewardship on page 12.

Plastic film made from 2-ethylhexanoic acid can be used in safety glass for cars, for example.



Product Stewardship

Product Stewardship is a concept within Responsible Care program that covers all the knowledge the company should have about the environment, health and safety aspects with which the company's products can be associated. Product Stewardship also means that the customers should be supplied with advice and instructions regarding safe transport, storage and use of the products as well as - if applicable - dealing with the products and their packaging after consumption.

Product safety

In order to carry out risk assessments, knowledge is required about the product's inherent properties. In order to ascertain the properties of products, searches are initially carried out in the literature, in databases and other sources. The company supplements missing information by conducting its own toxicology or ecotoxicology studies at test laboratories. Regular searches for new information are also made for well-known products so that Perstorp has access to the latest research.

However, the risk is also dependent on how the user is exposed to a chemical product. When the risk has been evaluated, it is then possible to specify how the product should ideally be handled in order to minimize the risk as far as possible.

Several of Perstorp's products contribute to increasing safety for humans and the environment

Charmor products are included in binding agents for paints that expand when exposed to heat. This means that painted steel components can be insulated during a fire, contributing to slower rises in temperature and thus more time for people to escape from a burning building.

Plastic film made from **2-ethylhexanoic acid** can be used in safety glass for cars, thus preventing sharp edges that can cause cuts during a collision.

Prosid products, salts of formic acid and propionic acid are used in animal feed and improve animal health. Reduced consumption of antibiotics is beneficial for both human health and the environment.

Polyol products are used to make binding agents for waterborne coatings, thus lowering risks to human health and the environment.

Approval from FDA for BEPD contact with food

In 2004, after several years of applying work, Perstorp received FDA (Food and Drug Administration) approval for BEPD (butyl ethyl propanediol) to be used in contact with food.

EU program for existing substances

Together with other businesses in Europe, Perstorp participates in producing risk assessment for mass-volume chemicals. Work on risk assessments for diethyl hexyl phthalate (DEHP) continued in 2004 and will be completed in 2005. The EU Commission has started developing risk-reducing measures for DEHP and it is expected that usage will be restricted.

IARC reclassifies formaldehyde

During the year the International Institute for Research on Cancer (IARC) reclassified formaldehyde, which now belongs to Group 1 carcinogens. This will have consequences for EU legislation. Perstorp works with these issues in CEFICs sector group FormaCare.

Preparations for REACH - future legislation within the chemicals field

Perstorp continues to monitor development of the forthcoming REACH regulations system. The affected parts of the organization have been informed about the contents of the proposals and the consequences for the company. Perstorp's customers have shown increasing interest.

Life-cycle perspective

Many of Perstorp's products are used by customers to make new chemical substances. Following a chemical reaction, the product made by Perstorp ceases to exist as a substance and it cannot be re-used, recycled or recirculated.



Transfer of technology

Perstorp is world-leading supplier of equipment and catalysts for production of formalin. This position is based on a highly efficient formalin process developed by the company and marketed under the Perstorp Formox brand.

Environmental safety is an integrated part of Perstorp's activities and is based on the belief that a good environment can be created by making it financially profitable. This results in reducing the environmental effects for Perstorp's customers in countries where environmental legislation is not so strict. For example, for the past decade all the formalin plants designed and supplied by Perstorp Formox have included a highly effective Emission Control System, ECS. In addition to the fact that an ECS almost eliminates emissions of volatile organic compounds (VOCs), it also generates valuable steam that makes a strong contribution to reducing energy requirements from other sources.

Perstorp also makes recommendations to customers about how they can optimize production of formalin and thus reduce consumption of non-renewable raw materials while maximizing steam production. The company also advises customers throughout the world on the safe handling of methanol and formalin. This is carried out through a magazine entitled *"Informally Speaking"* and at regular technology meetings and seminars that represent a key part of Perstorp's long-term commitment to the customers.

Perstorp produces catalysts for treatment of VOCs that are specially designed for treating VOC emissions from formalin factories. Catalyst VOC treatment results in reduced emissions of carbon dioxide (CO₂) and nitric oxides (NO_x) compared with thermal combustion. Energy consumption is also reduced by around two thirds.

Perstorp also produces formalin catalysts. All catalyst customers are given a unique re-purchase offer, whereby Perstorp buys back used catalysts. Perstorp can thus ensure maximum recycling of raw materials and safe handling of residual products from all its customers.

Management systems

Since 1994, the Perstorp Group has been working to introduce a management system for environment, health and safety. The management system is based on the international ISO 14001 standard, but covers also safety and the working environment.

The following companies within the Perstorp Group have ISO 14001 certificates:



Specialty Chemicals

Perstorp Specialty Chemicals AB, Perstorp, Sweden
Perstorp SpA, Castellanza, Italy
Perstorp Polyols Inc., Toledo (OH), USA
Perstorp Aegis Chemicals Pvt. Ltd., Vapi, India
Perstorp Chemicals GmbH, Bruchhausen, Germany
Hansol-Perstorp Co., Ulsan, Korea
Perstorp Oxo AB, Stenungsund and Nol, Sweden
Perstorp Oxo Belgium AB at Gent, Belgium, does not have ISO 14001 certificate.

Materials Technology

Perstorp Compounds AB, Perstorp, Sweden
Perstorp Chemitec SpA, Castellanza, Italy
Vyncolit N.V., Gent, Belgium
Perstorp Compounds Inc. at Florence (MA), USA, and Vyncolit North America at Manchester (CT), USA, do not have ISO 14001 certificate

At the units with certificates, annual internal audits of the management systems are carried out. External audits are also performed by independent assessors twice a year. Since being introduced in 1994 the management system has changed and been developed continuously. Experience from one part of the Group is passed on to other parts.

Within Specialty Chemicals a system called Perform was introduced in the spring of 2004. Perform is an integrated management system for quality, the environment, health and safety. Via a graphical interface, Perform presents an overview of work processes and their mutual relationships, while associated procedures and instructions are accessible via links to the actual processes. Perform will be developed continuously and will be introduced throughout the Group in the near future.

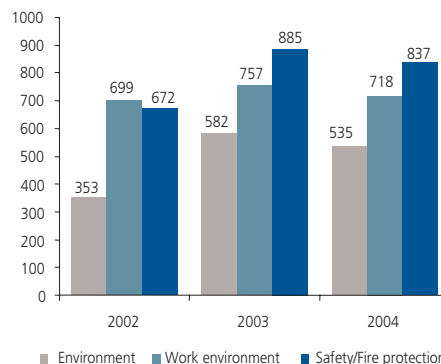
Training

For many years, Perstorp has offered the employees comprehensive training in environment, health and safety. In 2004 the training continued with courses at most of the units in the Perstorp Group. The most common form of training is fire protection and emergency situations. In addition the company provides training in environment, chemical health risks, waste management, etc.

Personnel are also informed about environment, health and safety through the Group's intranet, environmental meetings, environment brochures and environmental reports. All computers in production at Manchester (CT), USA, are equipped with "Rolling Newspaper", where environmental, health and safety issues are mentioned regularly.

During the year, proposals regarding the environment, health and safety have been rewarded within the Perstorp Group, including the units in Perstorp, Stenungsund, Gent, Belgium and Vapi, India. Perstorp Pharma gave a reward for an idea for reducing packaging material and Gent gave a reward for energy savings.

Training - Environment, Health & Safety
(number of employees) Perstorp Group





Environment

Resource management

Raw materials and auxiliary chemicals

The Perstorp Group uses a wide variety of raw materials in its processes, particularly formalin, methanol, natural gas, propylene, ethene, butyraldehydes and acetaldehyde. Other key chemicals include sulfuric acid, sodium hydroxide and formic acid. Many projects are underway at the plants to reduce the use of raw materials. Certain plants register all disruptions that cause increased use of raw materials and perform remedial measures to reduce the number of disruptions. Other plants perform different process improvements and optimization to reduce the amount of raw material per ton of finished product. An example of this is the unit in Castellanza, Italy. The plant in Vapi, India has increased its penta plant capacity to save raw materials and steam. The same is true of the formalin plant, which has been made more efficient in order to improve results.

Purified water

A number of projects are underway within the Group to reduce waterborne emissions. At the site in Perstorp, Sweden, a major project is underway that affects the entire industrial park. This project aims to reduce the hydraulic load on the wastewater treatment plant. In connection with this, work is also being undertaken to reduce the consumption of purified water. Several units are working to replace purified water with various types of recycled process flows. Others are taking measures to directly reduce the consumption of purified water.

Packaging material

The Perstorp Group accounts for substantial bulk shipments, but also uses various types of packaging materials for smaller shipments. These materials include paper and plastic sacks, plastic big-bags (partly reusable), metal and plastic drums, cartons etc. The aim is to increase the share of reusable packaging materials, and several units are working with this. One example is Perstorp Compounds at the site in Perstorp which has introduced a big-bag recycling project with its biggest customers. Perstorp Compounds has transferred parts of its deliveries to big-bags and this share is expected to increase over the coming years. Other units are working towards reducing waste from packaging. An example of this is the unit in Toledo (OH), USA. Another example is Bruchhausen, Germany, which works to cut the amount of material used in packaging material. In some cases, however, customers place demands on certain types of packaging, which may limit opportunities for reuse.

Raw material (about 1 760 000 tons)
 Auxiliary chemicals (about 35 000 tons)
 Packaging material (about 10 000 tons)
 Waste from external sources used
 in production (about 6 000 tons)
 Energy (about 1 624 GWh)
 Process water (about 2 000 000 m³)
 Cooling water (about 30 000 000 m³)



Products
 Cooling water
 Emission to air
 Emission to water
 Hazardous waste
 Other waste

Energy

During 2004, the consumption of energy rose at the Perstorp Group compared with 2003, mainly due to increased production at some units. Consumption of fossil fuels declined, while the share of peat and renewable fuels increased.

Several projects aimed at increasing the efficiency of energy consumption and saving energy are being carried out throughout the Group. Targets for saving energy have been set and a survey of energy consumption has started that will eventually cover the entire Group. Energy saving measures introduced within the Group during the year included a project in Toledo (OH), USA. Another example is the plant at Vapi, India, where several measures were carried out during the year. The Vapi plant is also looking at opportunities to use alternative fuels (biofuels). Perstorp Oxo in Gent, Belgium, has made adjustments to its process and this has had a positive effect on energy consumption. The plant in Castellanza, Italy, has implemented measures aimed at saving energy, while similar measures have been performed at the plant in Manchester (CT), USA.

The use of fossil fuels in the Perstorp Group amounted to 611 GWh in 2004, divided into natural gas, oils, methane/propane and coal.

Specialty Chemicals at the Perstorp plant intends to participate in the PFE program for increasing energy efficiency in energy-intensive industries. The aim is to implement an energy management system, which will bring the following benefits:

- the company will gain better control and a better structure for its energy consumption
- better planning, operations and maintenance procedures and purchasing routines
- reduced energy consumption and lower energy costs

The program has started and will run for five years. During the first two years the aim is to survey energy consumption and introduce and certify a standardized energy management system. During the remaining three years measures will be implemented aimed at improving the efficiency of energy consumption. An energy survey is being performed at the Specialty Chemicals plants. The results will be used to set targets for energy optimization. Meetings are held regularly to discuss ideas for reducing energy consumption. Extensive

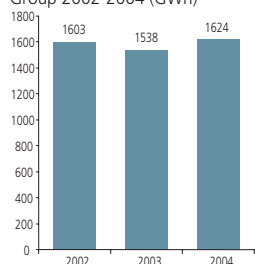
energy balances are made as necessary. The cost analysis of energy aspects is always addressed when investment is made in new equipment.

The steam power plant at the Group's largest plant in Perstorp supplies steam and electricity to the entire Perstorp Industrial Park. The switch was made from coal to biofuel as early as 1991. The main fuels are wood chips, demolition wood and peat. The steam power plant at Perstorp is a major supplier of heating to Perstorp Fjärrvärme AB, a district heating company that supplies the Perstorp urban area with heating for homes and other buildings. Heating for the network is extracted using a flue gas scrubber located in the steam power plant. Condensate is sprayed on the hot gas and hot condensate is collected at the bottom of the scrubber, from where it circulates to a plate heat exchanger for onward delivery to the district. The steam power plant is capable of generating all the district heating requirements of Perstorp municipality, and the project is a good example of co-operation between industry and local government.

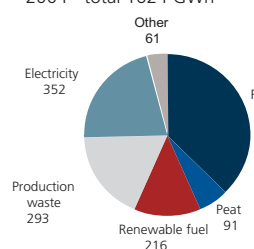
Perstorp Oxo supplies surplus heating to Stenungsund. Surplus heating is extracted from two places, the Oxo reactor tower's tempered water system and the isomer column's cooling system. The transfer of surplus heating from the plant to the municipality's district heating company, SEMAB, began when state finance was granted for the project in 2000. Around 600 additional homes, industrial buildings and shops could be connected to the system. Around 65 GWh of energy are consumed, which covers the heating requirements of the district except on very cold winter days when liquified petroleum gas boilers must be used.

A similar operation is conducted at the Group's plant in Nol, where surplus heating is supplied to Ale Fjärrvärme and neighboring industrial buildings. Ale Fjärrvärme distributes heating to its customers within the municipality. The energy that Nol supplies corresponds to around 3,500 cubic meters of heating oil, that is the amount that 1,200 homes consume each year. Deliveries of surplus heating reduce negative environmental impact through lower emissions of carbon dioxide, nitrogen oxides and sulfur. The plant at Nol is a production unit within Perstorp Oxo AB and has been producing phthalic anhydride since the mid 1940s.

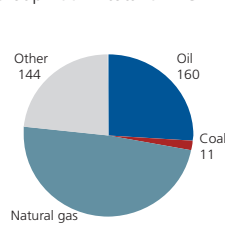
Energy consumption in the Perstorp Group 2002-2004 (GWh)



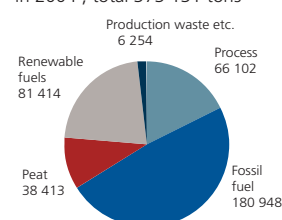
Energy use in the Perstorp Group 2004 - total 1624 GWh



Use of fossil fuel in the Perstorp Group 2004 - total 611 GWh



Carbon dioxide - Perstorp Group in 2004, total 373 131 tons





The flue gas scrubber at the steam power plant.



The steam power plant at the largest company site in Perstorp, Sweden, supplies steam and electricity to the entire Perstorp Industrial Park. The switch from coal to biofuel took place in 1991. The main fuels are wood chips, demolition wood and peat.

Greenhouse effect - influence on climate

The greenhouse effect is considered to be due to the fact while that the earth's atmosphere lets in short-wavelength solar radiation, the so-called greenhouse gases prevent long-wavelength thermal radiation from leaving. The risk is that greenhouse gases will disturb the earth's climate system by raising the temperature.

The main greenhouse gases are carbon dioxide, methane, dinitrogen oxide, sulfurhexafluoride, fluorocarbons and the coolants CFC/HCFC/HFC. Carbon dioxide is the chief contributor to the greenhouse effect due to the volume of emissions. Carbon dioxide is formed on the combustion or decomposition of organic material. Fossil fuels such as oil, coal and natural gas add "new" carbon dioxide to the atmosphere, i.e. carbon dioxide that was previously trapped in the earth's crust for millions of years. Biofuel, on the other hand, releases carbon dioxide that is already part of the natural cycle, and is thus not regarded as a net contributor.

The Perstorp Group began working to reduce its contribution to the greenhouse effect many years ago. One important measure has been the reduction in the use of fossil fuels. Back in 1991, a biofuel-fired steam boiler was built at

the Group's largest unit in Perstorp, Sweden, replacing the use of coal. Together with oil-fired back-up steam boilers, the biofuel-fired steam boiler supplies steam to some 20 plants in Perstorp and is the plant in the Group with the greatest total emission of carbon dioxide.

During 2004, Perstorp's total emissions of carbon dioxide decreased to 373,131 tons, compared to 388,300 in 2003, mainly thanks to less carbon dioxide emissions at the largest company site in Perstorp, Sweden.

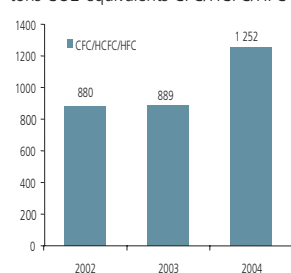
The work to improve energy efficiency continues at several sites in the Group. See the section Energy, page 16.

Carbon dioxide from transportation is not included in this report. In addition to carbon dioxide, other greenhouse gases emitted by the Perstorp Group include the cooling media (CFC/HCFC/HFC). See also section headed The Ozone Layer, page 18.

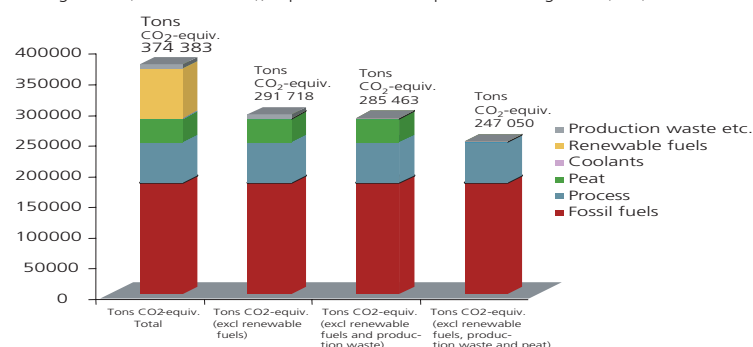
Greenhouse gas emissions allowances

The company has been granted greenhouse gas emissions allowances for carbon dioxide for 2005-2007. It is considered that the allowances allocated will match the company's requirements.

Contribution to the greenhouse effect (GWP/Global Warming Potential) - tons CO₂-equivalents CFC/HCFC/HFC



Contribution to the greenhouse effect from the Perstorp Group 2004 from carbon dioxide and cooling media (CFC/HCFC/HFC), expressed as CO₂-equivalents using GWP (100) factors





The Ozone Layer

Stratospheric ozone (O_3) is formed when ultraviolet radiation from the sun breaks down free oxygen (O_2). The stratospheric ozone layer protects the earth from harmful levels of the sun's ultraviolet radiation.

Chlorofluorocarbons (CFC) and hydrated chlorofluorocarbons (HCFC) are assumed to operate as catalysts for the degradation of ozone. It is believed that a stratospheric CFC molecule is split under the influence of UV radiation and emits a free chlorine atom that in turn attacks ozone molecules. As a result, the ozone layer is degraded. Moreover, CFCs are stable compounds that can continue to do damage for a long time.

A thinner ozone layer can influence the conditions of life on Earth. For humans, this may lead to higher frequencies of skin cancer and cataracts. For animals, plant life and micro-organisms, the balance between species may be shifted, favouring the ones more resistant to UV-radiation.

Within the Perstorp Group, CFCs and HCFCs are used, for example, in air-conditioning and cooling equipment. In recent years, efforts have been made to find substitutes for CFCs and HCFCs. Today, most Group units, including units in Sweden are totally CFC-free. Conversion to safer cooling media (e.g. HFC) is underway. At the same time, leak testing, maintenance and training efforts continue to be improved.

Within the Perstorp Group at the end of 2004, about 0.01

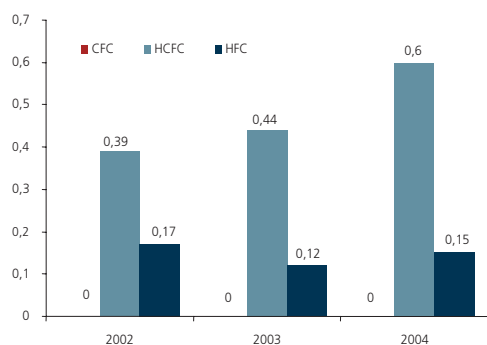
tons of CFCs were installed at Group facilities in USA. During 2004, there was no leakage of CFCs.

The installed amount of HCFC in the Perstorp Group in 2004 was about 4.3 tons and leakage amounted to 0.6 tons, i.e. about 14% of the installed volume. This represents an increase since 2003 when the corresponding leakage was about 10%. Significant emissions occurred during the year at the units in Castellanza, Italy, Vyncolit N.V. in Gent, Belgium, Manchester (CT), USA and Ulsan, Korea. The emissions were primarily due to leakage and technical breakdown of old cooling equipment that has since been replaced or repaired.

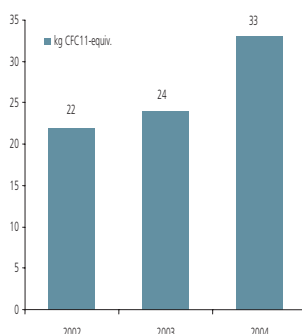
Perstorp considers that coolant leakage should not exceed 4% of any installed amount. The company continues towards this goal by improving maintenance and leakage detection, replacing old equipment, etc.

The installed amount of HFC within the Perstorp Group during 2004 was about 2.1 tons, with leakage of about 0.15 tons, i.e. around 7% of the installed amount, which is an increase compared to 2003 when leakage was 6% of the installed amount. HFC is not considered to contribute to the depletion of the ozone layer.

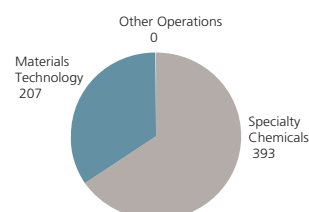
Leakage of CFC/HCFC/HFC to the air from the Perstorp Group (tons/year) the past three years



Contribution to ozone depletion from the Perstorp Group expressed in kg CFC11-equivalents, according to the Best Estimate ODP (WMO/World Meteorological Organization). CFC 11 and 12 = 1. HCFC 22 = 0,055



Distribution of HCFC leakage to the atmosphere from the Perstorp Group 2004 (kg/year). Total 600 kg.





Volatile Organic Compounds (VOC)

In certain weather conditions including sunlight, Volatile Organic Compounds (VOC) and nitrogen oxides from vehicular traffic, electricity and heat production plants and other industrial activities can contribute to the formation of photochemical oxidants, of which ozone is the most dominant. High levels of ozone in the troposphere can damage plant and animal life while acting at the regional and local level.

For emissions of nitrogen oxides from Perstorp, see the section entitled Acidification, page 20.

Emissions of volatile organic compounds from Perstorp originate primarily at the production plants. At the start of the 1970s Perstorp began installing treatment facilities for emissions to air. The first generation of treatment technology consisted of wet scrubbers, in which pollutants were treated in washing columns. Around 1975 the second generation of treatment technology was introduced, which involved thermal combustion using oil or other fuel. Demand for technology that consumed less fuel led to the introduction of the third generation of technology in 1985. This technology featured catalytic combustion. This is the most common treatment technology currently used by Perstorp, although wet scrubbers and thermal combustion

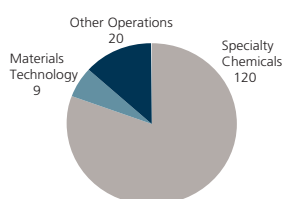
are still used by several plants.

In 2004 VOC emissions to air from Perstorp increased slightly compared with 2003 both within Specialty Chemicals and Materials Technology. The increase was mainly for methanol at the units in Perstorp and Castellanza, Italy and dimethyl ether at the plants in Sweden, Toledo (OH), USA and Castellanza, Italy.

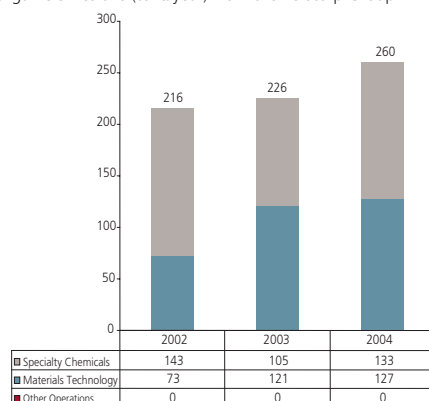
Methanol is the source of Perstorp's single largest emissions of VOC (60 tons in 2004). Methanol is found in small amounts at most of the Group's plants, with the largest amounts in 2004 at the plants in Perstorp, Sweden, Vapi, India, Castellanza, Italy and Höganäs, Sweden (methanol storage).

Isopropanol also accounts for a large share of Perstorp's emissions of VOC (52 tons in 2004). Vyncolit N.V. in Gent, Belgium, has reduced its emissions of isopropanol considerably in recent years by replacing it with a non-volatile substance. However, the unit at Gent still accounts for around 34 tons of the Group's emissions of isopropanol. In addition, Vyncolit North America, Manchester (CT), USA, accounts for emissions of around 18 tons of isopropanol.

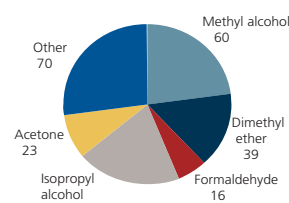
Distribution of HFC leakage to the atmosphere from the Perstorp Group 2004 (kg/year). Total 149 kg.



Organic emissions (tons/year) from the Perstorp Group



Organic emissions to the atmosphere from the Perstorp Group 2004. Total 260 tons.





There are 15 catalytic incineration facilities at different production plants at the site in Perstorp, Sweden. The largest facility comprises three lines - each with a capacity of 25 000 Nm³/hour.



One of the three boilers at Perstorp Aegis Chemicals in Vapi, India, was converted to use a bio-fuel system with excellent results. Emissions of sulfur dioxide have been drastically cut because the plant now burns briquettes made from bagasse, which is a waste product from the sugar-cane industry.

Acidification

Acidification is believed to result from emissions of sulfur dioxide and nitrogen compounds (nitrogen oxides and ammonia), which have a tendency to form acid rain. When fuels containing sulfur (coal, oil etc.) are burnt, the sulfur is released and it can react with oxygen in the air to form sulfur dioxide. This in turn reacts to become sulfuric acid, which is dissolved and falls to the ground as rain. Nitrogen oxides are emitted by traffic and combustion plants through a reaction between nitrogen and oxygen. They react further to become nitric acid, which has a fertilizing effect when it reaches soil, rivers and lakes.

Emissions of sulfur dioxide from the Perstorp Group come mainly from burning of fuel containing sulfur at the Group's plants. In 2004 the Group's emissions of sulfur dioxide were reduced considerably due to major efforts at the plant in Vapi, India. A large proportion of oil was replaced with biofuel by using pre-oven ahead of a combustion unit. The biofuel consists of sugar-cane waste. The Vapi plant is investigating the use of other types of biofuel in order to further reduce oil consumption.

Another unit emitting sulfur dioxide is the unit at Perstorp, Sweden. Measures to combat the emissions started in 1991 when the coal-fueled boiler was replaced with renewable biofuel through the investment in a new and modern biofuel-fired

steam boiler. Oil-based heating is still performed in the company's reserve boilers. The Perstorp plant reduced its sulfur dioxide emissions in 2004 by reducing oil consumption, while sulfur dioxide emissions at the plant in Bruchhausen, Germany, increased marginally in 2004.

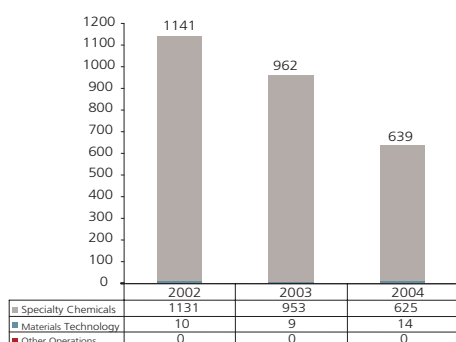
Emissions of carbon dioxide come mainly from combustion facilities within the Group. In 2004 emissions of nitrogen oxides fell slightly, partly due to an optimized fuel mix, smoother operation and, to a certain extent, reductions/changes in production.

The overall amount of ammonia emissions from the Perstorp Group fell marginally in 2004 to around 10 tons.

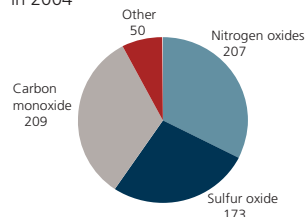
The main measures for tackling acidification are using the best possible treatment and combustion technology, using energy from renewable sources and managing resources sensibly. Work aimed at improving the efficiency of energy consumption is underway at most units within the Group. See also the section entitled Energy, page 16.

Natural gas replaced heavy oil as the raw material in the production of syngas at the Group's plant in Stenungsund, Sweden, in 2004. The change gives many environmental benefits, principally that emissions to air and water are drastically reduced. Because the gases are in principle free from sulfur, nitrogen and heavy metals, the sulfur cleansing and nitrogen reduction facilities could be shut down.

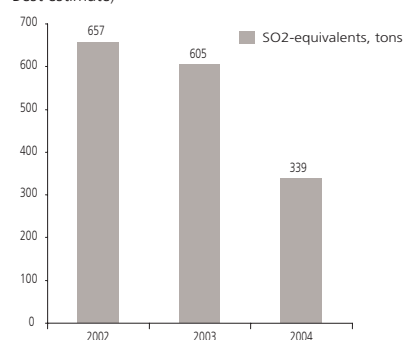
Inorganic emissions from the Perstorp Group (tons/year) for example sulfur dioxide and nitrogen oxides, etc.



Total emission of inorganic substances amounted to 639 tons in 2004



Contributions to acidification from the Perstorp Group regarding SO₂, NO_x, HCl and NH₃ expressed in SO₂-equivalents using acidification factors (Nordic Guidelines, Best estimate)



The main fuels in the steam boilers at the unit in Stenungsund include internal distillation by-products (LE/HE, light and heavy by-products, classified as hazardous waste), internal surplus gas mainly in the form of propane, and a certain amount of purchased combustion gas in the form of methane and a small percentage of hydrogen gas from a nearby plant. In addition, so-called EPA water is also burnt. This means that most of the hazardous waste at the Stenungsund unit is burnt on site in the steam boilers.



Waste

Throughout the Group major efforts are made to reduce the volume of waste. At Perstorp Compounds in Perstorp, Sweden, for example, a special project aims to reduce waste levels. Extensive training has been carried out at the Group to raise knowledge about waste management. However, the total amount of waste increased in 2004 due to the increased amount of production.

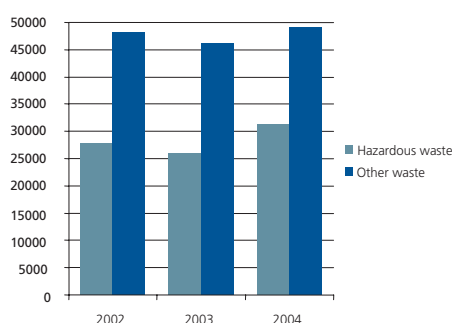
Different types of hazardous waste (according to legal requirements in each country) are produced by the Perstorp Group. The largest amounts are generated from distillation by-products at, among other places, the unit at Stenungsund and process-related recovered methanol at the unit in Perstorp, Sweden. Both of these waste items are recycled internally. Other examples of hazardous waste include oil spills, solvents, laboratory waste, active carbon and heat transfer fluid.

Other waste consists of many different types of waste, primarily mother liquor (sodium formate) for recycling. Other types of waste include metal, glass, paper and plastic that can be recycled. Some waste is burnt, including certain types of organic waste, sludge, active carbon, certain types of polyol waste, mother liquor, etc. Sorted solid waste, ashes and sludge

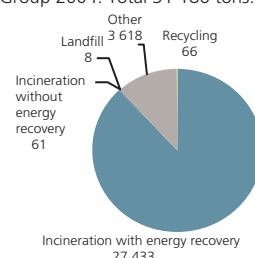
are disposed of as landfill.

The Perstorp Group accepts a limited amount of waste from external sources. The catalyst plant in Perstorp, Sweden, accepts its customers' spent catalyst for recovery. Perstorp Compounds in Perstorp takes back cured thermoset rejects from its customers, for incineration. Perstorp Compounds Inc. in USA takes back laminate material used in a process. In addition, units in Florence (MA) and Manchester (CT), USA, accept non-hazardous waste for use in production. The unit in Stenungsund accepts around 75 tons per year of so-called light/heavy ends for use as fuel from its sister plant in Gent, Belgium.

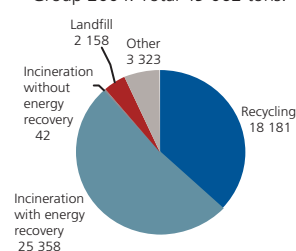
Total waste from the Perstorp Group (tons/year)



Hazardous waste from the Perstorp Group 2004. Total 31 186 tons.



Other waste from the Perstorp Group 2004. Total 49 062 tons.





Wastewater treatment plant and the cooling pond at the site in Perstorp, Sweden.



Biological wastewater treatment plant at the site in Castellanza, Italy.

Emissions to water

Organic substances emitted to lakes and waterways or leached from the ground consume oxygen during decomposition. The reduced oxygen content may adversely affect aquatic plant and animal life.

Perstorp Specialty Chemicals AB dominates the Group's total waterborne emissions. The primary sources are the Group facilities at Toledo (OH), USA, Castellanza, Italy, Bruchhausen, Germany and the site at Perstorp, Sweden.

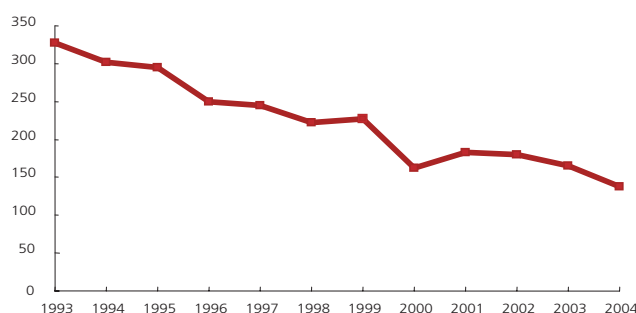
Certain plants treat their emissions in their own treatment plants, including Perstorp, Stenungsund, Castellanza and Vapi, India. Other units are mainly connected to the municipal treatment plants.

Emissions to water of organic substances increased in 2004, compared with 2003, at the site of Castellanza and Bruchhausen. The units in Toledo (OH) and Perstorp recorded fewer emissions. The unit in Toledo (OH) implemented a number of process improvements at its polyol plants, thereby sharply reducing the amount of emissions to water. The unit at Vapi has also introduced improvement measures.

A number of projects are ongoing in the Group in order to reduce the amount of emissions to water. At the site in Perstorp, a major project is in progress, covering the whole industrial park, for the purpose of reducing the hydraulic load at the wastewater treatment plant and the thermal load to the receiving water.

An important part of reducing the hydraulic load is to increase the amount of process water that is used by a production plant or exchanged between plants. Projects were carried out at both Vapi, India and Perstorp in 2004.

Emissions from the Wastewater Treatment Plant in Perstorp, Sweden, kg TOC/day



Parts of the industrial park in Perstorp, Sweden, consist of park-like green spaces.



Land

Use of land

Many of the Perstorp Group's plants are located in industrial areas where ground usage is optimized by having several factories in one place so that essential equipment can be shared. The largest unit of the Group - located in the Perstorp Industrial Park in Perstorp, Sweden - is a good example. The production of chemicals started in 1881. Around 20 plants share the steam power plant (biofuel-based energy), wastewater treatment plant, fresh water plant and other essential functions. Several factories that use formalin are also located near their source of raw material, as formalin is produced in five plants in the industrial park.

The Perstorp Industrial Park covers about 950,000 square meters of fenced territory, which in turn lies within an area of Perstorp-owned land amounting to a total of 2,710,000 square meters. This constitutes a relatively large buffer zone to the nearest residential areas in all directions except north. The Perstorp Group also controls a number of lakes east of the industrial park, most of which are rich in bird life. The abundance of wetlands, reservoirs and small lakes enhances the natural value of the surroundings. Water from the lakes flows through the Perstorp Industrial Park via Ybbarp River.

Considerable efforts have been made to harmonize industrial operations with the surrounding nature. There are green open spaces of varied sizes between the buildings and in some parts the vegetation is like a park. There is a great variety of species of flora as well as fauna. Birds dominate the wildlife, but there are other small animals as well.

Flora and fauna within Perstorp Industrial Park

The flora at Perstorp Industrial Park has been surveyed since 1984. Over the years no less than 486 different plants and 120 kinds of birds were found. The industrial park has an animal population, with elk and deer appearing from time to time. This animal population also includes badger, hare, rabbit, fox, mink and marten. Frogs, toads, adder and grass snake

are also common. Among the more remarkable observations made were otter in 2001 and lynx tracks during a winter in the 1990s.

Land/groundwater contamination

During 2002, an area of land/groundwater contamination was discovered at the neopentyl glycol plant at the site in Perstorp, Sweden. Because of leakage in joints and collecting chutes, neopentyl glycol had leached into the soil and caused local contamination of groundwater. The environmental authorities were informed and clean-up measures were discussed with the local county authorities. The clean-up continued throughout 2003 and 2004 and regular follow-ups have been made and reported to the authorities. Clean-up target values have been established, one of which was reached during the early part of 2004. The clean-up work will continue until further notice.

Discussions were held during the year about responsibility for historical soil contamination in Bankeryd, Sweden. In the past the county administrative board issued an injunction, with a penalty for non-compliance, regarding deep soil clean-up. Since the company had already cleaned up the property, and had the clean-up approved by the county authorities, the company appealed the injunction to the Environmental Court. The Environmental Court found in favour of the company in the summer of 2004. The county administrative board meanwhile appealed to the Environmental High Court, where the case was decided in May 2005. The Environmental High Court found in favour of the county administrative board, meaning that Perstorp must do a new survey of the property.

The unit in Vapi, India, introduced minor ground clean-up measures in 2004. Further clean-up measures are expected during 2005.

A survey of environment, health and safety issues is always made in connection with acquisitions. One of the most important issues in this survey is the existence of any contaminated soil.

Transports

When Perstorp buys transport services, the transport company is asked to complete an extensive questionnaire that includes questions about the environment, health and safety. The supplier's answers are evaluated and awarded points. If Perstorp considers that improvements are required in terms of the environment, health and safety in connection with transportation, demands are made known to the supplier. Perstorp's requirements are outlined in the purchase specification, which is a key document in the purchasing process. A transport advisory board, which includes the purchasing director, has been established in order to develop the transport purchasing activity. This board addresses environmental, health and safety issues. Transport suppliers are assessed regularly.

Work is underway at a number of units to improve safety and reduce the amount of transported goods. The unit in Gent, Belgium, works to optimize the number of bulk deliveries straight from factory to customer, by reducing the use of temporary storage sites. The unit in Toledo (OH), USA, works closely with its suppliers of hazardous goods in order to improve safety. Other units working with transport issues during the year included the formic acid plant, allylether plant, Perstorp Pharma and Perstorp Compounds in Perstorp and the unit in Vapi, India.



Unloading of methanol at the site in Perstorp, Sweden.

Noise

Efforts are underway at the Perstorp Group to reduce noise generated by the company's activities. A comprehensive survey of noise sources carried out at the Perstorp Industrial Park in 1998/99 revealed that measures were required at several plants to achieve good margins to existing noise limit values. Action plans were drafted and noise-abatement measures taken at the most critical sources. Follow-up checks have shown that the actions produced good results, but the work to reduce

noise within the industrial park continues.

Activities in 2004 included noise-abatement measures at the Group's units in Perstorp (Perstorp Pharma and the formic acid plant), Nol, Sweden, Vapi, India and Gent, Belgium. Perstorp Compounds at Perstorp has conducted a survey and is now planning for noise-abatement measures in 2005.

Environmental Accidents

Risk assessment/analyses and preventive measures

The units in the Perstorp Group work regularly with safety surveys and risk analyses to identify remaining risks to the environment, health and safety. Extensive safety surveys are conducted in connection with the safety reports in accordance with the Seveso II Directive. When there are changes in an operation, new risk analyses are always carried out. The risk analyses result in new recommendations for preventive measures which are then implemented. During 2003, a comprehensive review was undertaken of the procedures for risk assessments in connection with technical changes. This review led to a common structure, whether for major projects or minor modifications, and regardless of the current status of the modifications.

Numerous risk analyses were carried out in 2004. Most units in the Group do an average of 1-10 risk analyses per year, with some doing more. The Risk & Accident database is also used for registering risks within the company.

Evacuation, fire and emergency drills were conducted at the Group's units during 2004.

Environmental accidents and fires

During 2004, the number of reported accidents relating to the environment and safety in the Perstorp Group fell dramatically compared to 2003. Accidents have been of a less serious nature. The drop is probably due to Perstorp's regular work with risk analyses and constant improvements concerning preventive and damage-limitation measures.

Eight minor incidents of accidental atmospheric emission were reported during the year, which is considerably less than in 2003.

Ten incidents of accidental waterborne spillage to recipient/treatment plants were reported during the year, which is considerably less than in 2003.

Six minor incidents of accidental ground spillage were reported during the year, which is marginally more than in 2003.

The number of fires (seven) fell during the year, compared to 2003.

Near accidents and accidents are reported in a Group-wide Risk&Accident database. Inquiries and follow-ups are performed with the help of the database.



Working environment and safety

Accidents at work

The number of accidents that have caused one day of sick leave (LTA) fell in 2004 compared with 2003. The number of accidents was reduced in principle by 50%.

Work aimed at achieving zero LTA continues and a conference of the Group's EHS coordinators was held in April 2005 entitled "The working environment and employee

health". The program focused on learning from accidents that have occurred and on risk analyses.

But despite all the work with risk analyses, inspections, audits, various safety activities and training, accidents still happen. Current work environment risks are shown in the following table.

Business sector	LTA 2002	LTAR 2002	LTA 2003	LTAR 2003	LTA 2004	LTAR 2004	Frequency of accidents causing sick leave, type of accident	2003 %	2004 %
Materials Technology	21	30,3	32	36,5	16	17,6	Exposure to/contact with chemicals	1	13
Specialty Chemicals	26	11,0	26	10,9	15	6,3	Exposure to extreme heat or cold	9	3
							Injured by moving machine part	9	13
							Fall from significant height	10	3
Total	47	15,4	58	17,2	31	9,0	Fall at same level	14	10
							Strain injuries	24	23
							Monotonous movement or arduous position	12	26
							Struck hard object	9	6
							Other	12	3
							Total	100	100

LTA (Lost Time Accidents)

= work accidents causing at least one day's sick leave

LTAR (Lost Time Accident Rate)

= number of LTAs per million working hours

Group network of EHS coordinators

Members of the Group network of EHS coordinators met at Stenungsund, Sweden, in September 2004. The purpose of the meeting was to share experience and coordinate activities. One of the projects is aimed to develop guidelines and standards within the fields of the environment, health and

safety. This has resulted in a shared standard for a management system that is now part of the Perform management system. In addition to the requirements of ISO 14001:2004, it also contains requirements from the specification for the working environment management system, OHSAS 18001:1999.

Risk management

Overall risk management is handled by Corporate Finance and Global EHSQ. Property, responsibility, business interruption, transport and criminal insurance is handled by the Insurance Management in cooperation with the local companies. The Insurance Management department is responsible for purchasing, developing and handling the Group's global insurance program and ensuring that the Group has comprehensive insurance coverage. They also help Group companies

to minimize risks. To reduce the risk of business interruption, regular technical inspections are made at the production sites. These inspections are coordinated by Global EHSQ and performed by third parties, thus giving Perstorp an objective and independent description of the safety standards throughout the Group. Recommendations for reducing risk are dealt with as risks and documented in the Risk & Accident database for follow-up action.

Database on Perstorp's intranet for reporting of risks and accidents - Risk & Accident

Development of a global database for reporting of incidents, accidents and risks was completed in 2004. It is readily available to all employees via the Perstorp intranet. This is a tool for

fast and simple reporting of events that have occurred and risks that have been identified. It is also useful for efficient follow-up and exchanging experience throughout the Group.



Stakeholders

General public

Environmental information for the general public

Perstorp considers that it is important that the general public, including local residents and other interested parties, are kept well informed about the company's environmental efforts. Information is therefore provided in the company's annual Environmental Report, Annual Report and in various brochures. Information is also made available to the media via the internet.

One example of the environmental information provided for the journalists is the annual information day for the press held at the Perstorp unit in Sweden. The local media are invited to a presentation of environmental projects being carried out at the Perstorp Industrial Park. Visits are made to factories in the park that have performed interesting environmental activities during the year. This presentation results in articles in the local press, which enables local people to learn about the activities. A special brochure is produced for this occasion each year.

When larger environmental initiatives are taken at the Perstorp Industrial Park, information is supplied to the ge-

neral public via special advertisements on the local pages of the daily press. For example, if a factory expansion is announced, the environmental consequences will be explained. The general public is encouraged to contact the company to offer opinions and ask questions.

Several units, including the Swedish ones, submit annual environmental reports to the local authorities. These reports are open to the public and can be requested from the company or the authority concerned.

If an accident or incident occurs at Perstorp, information is given to the local press. Contacts have been established with local journalists. If a major leakage occurs to the surrounding waterways, information is supplied immediately using a list of local landowners who may be affected.

The units outside Sweden are also covered in the media. During 2004 in Bruchhausen, Germany, for example, media noted the company's annual training course held in association with the local emergency services.

Safety information for the general public

A major safety information campaign has been conducted in recent years to meet legal demands and new legislation regarding the control of major-accident hazards involving dangerous substances (Seveso Directive). Perstorp conforms with the demands that require safety reports to be submitted to the authorities. Perstorp has been submitting this type of report, from its Swedish units among others, since 2000. These demands affect several of Perstorp's units in Europe.

A safety information brochure was sent to each household in the village of Perstorp, Sweden, in 2000 and is available on the internet. Press conferences were held, resulting in articles in the local press. In direct connection with the publication of the safety information brochure, the Perstorp unit held an open house during which a number of experts were available for questions relating to the chemicals used at the plant. The safety information was also on display as an exhibit. An updated safety information brochure will be sent out in 2005.

A similar information campaign, though less extensive, was conducted in the village of Höganäs in cooperation with the Höganäs Rescue Service. Perstorp Specialty Chemicals AB owns a facility in Höganäs harbour for unloading, storage and loading of methanol.

The same information campaign was also conducted by Perstorp Oxo in Stenungsund, Sweden, in cooperation with other petrochemical industries and the Stenungsund Rescue Service. The safety information brochure was sent to each household in Stenungsund as well as to the neighboring regions. For 2004, Perstorp Oxo AB, in cooperation with the Stenungsund municipality and other petrochemical companies in the region, has asked one of Sweden's leading experts to analyze the safety situation in the region. The study looked at the plants and transports via pipes, roads, rail and sea. The results were presented to the general public via press releases, press conference and advertisements sent to the residents of Stenungsund, Tjörn and Orust.



During 2004, the neopentyl glycol plant in Perstorp, Sweden, was given permission for extended production.

The plant in Stenungsund, Perstorp Oxo AB, has two local information channels. Molekylverkstan ("the molecule workshop") is a science center that is used by petrochemical companies in Stenungsund to explain their operations and environmental work. Four times a year, Molekylen is printed as an advertising supplement in a regional newspaper distributed to all residents. Molekylen deals with the petrochemical industry's environmental work in a broad sense.

Perstorp Chemicals GmbH in Bruchhausen, Germany, has satisfied the high requirement level stipulated in the Seveso legislation and has distributed a safety brochure to local residents. A safety report has also been submitted to the authorities. A new safety report is planned for 2005.

Perstorp Oxo Belgium AB in Gent, Belgium, together with the Ministry of Internal Affairs, has compiled an information brochure that has been distributed to the households in the region. Information has been provided via features on TV and through a joint event at which representatives from all the municipalities that have plants covered by the Seveso Directive participated and at which experts were present who were able to answer questions from the general public. A safety report has been submitted to the local authorities.

The unit in Castellanza, Italy, has also submitted a safety report to the local authorities.

Authorities

Perstorp values good contact with the authorities and constantly works to further develop them. In its capacity as a major chemicals company, Perstorp has frequent contact with authorities regarding issues such as the external environment, the working environment, fire prevention and product awareness. As an example, the unit in Perstorp, Sweden, is in contact with the supervisory authority several times a week exchanging information. The authority is immediately contacted in the event of an emergency and their advice and directions are followed. This cooperation works well and the supervisory authority has a good insight and a great awareness about the nature of the company's business.

In Sweden, the Group has some twenty operations that require permits including Perstorp Specialty Chemicals AB, Perstorp Compounds AB and Perstorp Oxo AB, for the manufacture of polyalcohols, formalin, organic acids, aldehydes and alcohols. The main part of the Group's Swedish activities consists of units requiring permits. Each unit is obliged by law to submit an annual environmental report, approved by

Open House

Open-house days are held every few years by several units in the Group. The most recent open-house days were held in Perstorp and Stenungsund, Sweden, in 2003 (Chemistry Day). Also the unit in Castellanza, Italy, arranged open house in 2003. "Fabrique Aperte", as the event was called, made it possible for the employees' families and authorities to visit the plant.

Visitors

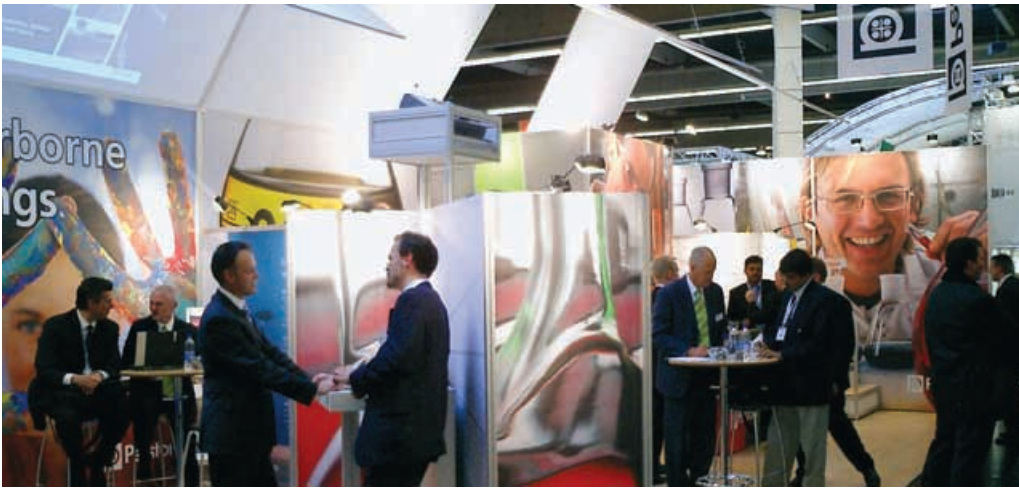
Perstorp regularly receives visits from interested parties from various sections of the community, such as universities, colleges and businesses, as well as politicians, analysts and various associations.

Complaints

Questions and complaints from the general public are received and remedied in accordance with procedures set out in the ISO 14001 management system. There have been a few individual complaints regarding odor and noise at certain units during 2004, including the units in Perstorp (2) and Stenungsund (5) in Sweden, Gent (1) in Belgium, and Castellanza (2) in Italy.

the supervisory authority. During the year the Environmental Court in Växjö approved a new permit for increased production of neopentyl glycol and allylethers at the Perstorp unit. The Environmental Court is currently dealing with the application for extended production of trimethylolpropane at Perstorp and a new ruling on the permit is due in 2005. A number of permit rulings made by the Environmental Court concerning extended production of formalin and pentaerythritol in Perstorp, were settled during the year by the Environmental High Court/Svea Hovrätt, following an appeal against transport conditions. The Environmental High Court annulled a previously submitted transport condition and adjusted another. More new permit applications are expected to be submitted to the Environmental Court in Växjö in 2005, including from Perstorp Specialty Chemicals AB.

The units in Bruchhausen (Germany), Gent (Belgium), Toledo OH (USA) and Castellanza (Italy) were granted new permits for various kinds of changes to their business during the year. A number of units plan to apply for new permits in 2005.



The European Coatings Show in Nuremberg is held every two years. There was a major response at the last show for Perstorp's investment in waterborne coatings.

Customers

Demand is increasing for environmentally-adapted, cost-effective specialty chemicals with improved technical performance. Specialty Chemicals is working in close cooperation with its customers to enable the substitution to more environmentally-adapted paints. The cooperation is based on broad contact surfaces, involving many functions at the customer and at Perstorp.

Environmentally-adapted paint systems

There are three main types of environmentally-adapted systems: waterborne coatings, powder coatings and radiation curable coatings. Perstorp has been the lead player in polyols for radiation curable coatings and printing ink for many years. Together with key customers in the area, Perstorp has developed the market from being a very small niche market 20 years ago, to becoming a significant market with major areas of use, such as printing ink and industrial lacquer coatings. Products have been launched during the year for coating plastics. Special focus has been paid to improving durability of these coatings and exceeding the qualities of solvent-based alternatives. The coatings are used in areas such as protective surfaces for mobile phones and vehicle headlamps.

During the year Perstorp has intensified its investment in waterborne coatings. This was also the theme of the latest European Coatings Show in Nuremberg. Many new products were launched to make it easier for customers to adapt to the stricter VOC regulations for coatings, to be introduced throughout Europe in 2007. Perstorp has, among other things, a completely new solution for waterborne consumer coatings for combining the well-known good performance of alkyd

coatings with performance from traditional waterborne coatings. Perstorp is also increasing its investment in industrial waterborne systems with yet another type of product, polycarbonate dioles. The response from the market was excellent with many customers wanting more in-depth cooperation with Perstorp.

Customer cooperation is also happening within powder coatings. Powder coating is a formulation of solid polymer binders and pigments applied without being diluted. Therefore there are no solvents or water required to apply the coating, and the powder is simply sprayed on and sticks to the surface being painted. The powder melts and hardens in an oven. The technology allows nearly all the coating to be used because it is applied electrostatically and the powder is attracted to the product being painted. Perstorp designs products to expand the areas of use of this resource-efficient technology to new applications and materials. Apart from the development cooperation with customers the company also runs research activities with leading universities.

Suppliers

Perstorp considers it important to cooperate with its suppliers about various environmental and safety issues. Examples of these include the units in Perstorp and Stenungsund (Sweden), Castellanza (Italy), Vapi (India), Florence CT (USA) and Vyncolit (Belgium and USA) who communicate safety issues to their suppliers to maintain a high level of safety at every stage. Another example is the unit in Toledo OH (USA), which works with some of its suppliers to reduce the amount of packaging material.

Evaluation of suppliers from environmental perspective

Suppliers are also assessed from an environmental perspective within the framework of Perstorp's management system based on ISO 14001.

The first step is to carry out an initial environmental assessment of new suppliers. In cases where Perstorp considers that the relevant raw material/auxiliary chemical is linked to a significant

environmental aspect, a more in-depth analysis is carried out. At the site in Perstorp, Sweden, the environmental department at Perstorp carries out the environmental analysis and reports to the purchasing department. The environmental department presents the replies received from the suppliers, and the review meeting reaches a decision on what environmental requirements are to be stipulated. The requirements are then communicated to the supplier via the purchasing department.

In-depth environmental evaluation is carried out annually. Amended legislation and new know-how can mean that existing raw materials/auxiliary chemicals need to be upgraded from significant environmental aspects, which involves carrying out a more in-depth analysis of suppliers' environmental codes of practice.

In recent years a more in-depth environmental evaluation of suppliers has been carried out for a number of important raw materials at the site in Perstorp. In one of these cases, the evaluation led to an environmental audit of the supplier's site being required. Other suppliers were found to employ good environmental codes of practice.

Contractors

At the site in Perstorp, for example, there are carefully drawn up, general provisions for contract and consultancy work, as well as for transportation in the industrial park.

General provisions for contract and consultancy work

Provisions deal with subjects such as responsibility, flammable goods, substances that are harmful to health and the environment, permits for carrying out work at installations and equipment, training requirements for some jobs such as forklift truck driving and hot-work, requirements for personal

protection equipment, alarm procedures, rules regarding tidiness, sorting-at-source and traffic issues.

General provisions for transport

These regulate such things as requirements for drivers to be able to produce transport documentation, e.g. driver's certificate and vehicle certificates for the transport of hazardous goods. The provisions also deal with requirements for personal protection regulations, general protection regulations, alarm procedures, rules about tidiness and traffic issues at Perstorp Industrial Park.

Industrial Organizations

It is essential for Perstorp to monitor what is happening at both domestic and international levels in the field of chemical product safety. On a domestic level, Perstorp is participating in the work of the Swedish Plastics & Chemicals Federation. On an international level, the company participates in various sector groups of the chemical industry's trade organization CEFIC as well as other collaborative organizations within the industry.

CEFIC

Inge Pettersson, deputy CEO, is a board member of CEFIC. Anna-Lena Rykfors, product safety manager at Perstorp Specialty Chemicals AB, is a member of the Environment Working Group and Toxicology Working Group at CEFIC's sector group European Council for Plasticizers and Inter-

mediates, and also on the Technical Working Group in the sector group for formaldehyde, FormaCare.

Swedish Plastics & Chemicals Federation

Inge Pettersson is a board member of the Swedish Plastics & Chemicals Federation, and the chairman of the organization's environmental committee. Perstorp has a further two members on the environmental committee: Jan Petersson, head of EHSQ Perstorp Specialty Chemicals AB, and Arne Alex-andersson, head of EHSQ Perstorp Oxo AB. Jan Petersson is also the chairman of the organization's safety committee. Arne Alexandersson is a member of the organization's transporting hazardous goods committee. Charlott Jönsson, product safety manager at Perstorp Specialty Chemicals AB, is a member of the organization's chemicals committee.

Competitors

The Perstorp Group has a Competition Policy. This policy covers the requirements set by legislation about competition and Perstorp's ethical regulations for these issues.

Environmental-related financial data

For several years Perstorp has reported the financial details of environmental issues in its environmental report. This information covers the external environment and occupational safety. In order to connect this information with normal financial reporting, the same accounting principles are used as far as possible. To make analysis simpler, businesses divested in 2004 have not been included in the tables.

Environmental investments

The total sum of environmental investments, which covers emission management and emission prevention, investment in safety and fire protection, and improvements in the working environment, amounted to SEK 32.8 million (51.4 m) in 2004, which corresponds to around 16.3% (12.5%) of total investments.

Several environmental investments carried out within Perstorp have been aimed at reducing the hydraulic and thermal impact on Ybbarp River, and to reduce internal transport, consumption of steam and the intake of clean water.

The formic acid plant at Perstorp will be replaced in 2005 by a new formic acid line that will involve several improvements in terms of the environment and work safety. Handling of condensate from the polyol plants has been altered and investments have been made at the Di-TMP plant in order to reduce consumption of clean water and steam.

The natural gas pipe from Gothenburg to Stenungsund, Sweden, was completed in May 2004 and Perstorp Oxo switched from heavy oil to natural gas as the raw material for the base processes.

During the year Perstorp Polyols in Toledo (OH), USA and Perstorp Chemitec SpA in Castellanza, Italy, completed several projects aimed at replacing asbestos in ceilings, pipe systems and tanks.

By investing in the conversion of a boiler at the Vapi plant in India, it was possible to replace heating oil with small briquettes made from sugar-cane, and thus reduce emissions of sulfur dioxide.

Environmental costs

In 2004 costs relating to the environmental and occupational safety amounted to SEK 70.9 million (79.6 m), which represents 1.1% (1.4%) of the Group's net sales turnover.

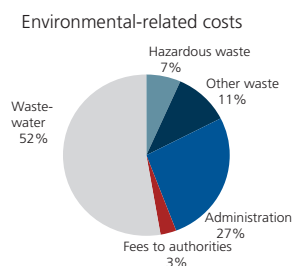
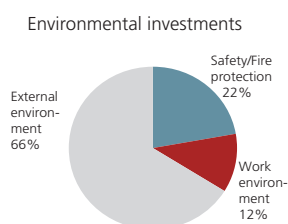
Costs for handling, transport and waste management amounted to SEK 12.4 million (18.7 m). During the year the Group paid around SEK 37.3 million (38.4 m) for disposal of wastewater and around SEK 19.0 million (20.5 m) for administration of environmental activities. Administration costs include costs for environmental staff, introducing and maintaining the environmental management system and consulting services. No significant financial reserves for environmental activities were made in 2004.

Environmental liability

Perstorp's financial reporting is based on the "going concern principle", continuous development and existence of the company, which is also reflected in appraisals of eventual environmental liabilities.

The Group complies with decisions issued by public authorities and implements measures both proactively to prevent environmental effects and reactively in the event of environmental disturbances.

During the year, the question of environmental liability for the Group's main plants in Perstorp was evaluated. The evaluation did not lead to any changes in the financial reporting with regard to environmental considerations.



Leif Pagrotsky, Swedish Minister of Industry, inaugurated the natural gas pipe-line on May 17, 2004, in Stenungsund.



New line for production of formic acid

The formic acid plant at Perstorp will be replaced in 2005 by a new formic acid line, which will be integrated with production of pentaerythritol in the penta plant. There are several advantages with an integrated process, including the fact that the processes can be managed from the same control room.

Sodium formate is a by-product of penta production and is also a raw material of formic acid production. Instead of having two factories in separate locations, production will be centered at one site. There are many advantages here in terms

of logistics and transport.

The new formic acid line will use a new production process, based on liquid sodium formate dissolved in formic acid, instead of sodium formate in solid form.

The new formic acid line will also mean many improvements from environmental and occupational safety aspects. For example, the thermal impact on Ybbarp River will come to an end. The corrosive conditions in the formic acid plant will also be improved, which will have considerable environmental benefits.

In the autumn of 2004 work started on the new formic acid line at the Perstorp plant.



ENVIRONMENTAL INVESTMENTS, the Perstorp Group

SEK million	2004	2003
Fire and safety	11.1	12.3
Working environment	5.8	14.4
External environment	15.9	24.7
TOTAL INVESTMENTS	32.8	51.4
Percentage of Perstorp's total investments, %	16.3	12.5

ENVIRONMENTAL COSTS, the Perstorp Group

SEK million	2004	2003
Wastewater	37.3	38.4
Hazardous waste	4.8	9.5
Other waste	7.6	9.2
Administration	19.0	20.5
Fees to authorities	2.2	2.0
TOTAL COSTS	70.9	79.6
Percentage of Perstorp's net sales, %	1.1	1.4



Organization for the environment, health and safety

The corporate function for environment, health and safety (Global EHSQ) was formed following the restructuring of the Group in 2004 and is led by Jan Petersson. This staff includes experts in various sectors, including the external environment, working environment, production safety, water and energy issues.

Overall responsibility for EHS issues resides with each company's Board of Directors and the Managing Director, while legal responsibility and operational responsibility are primarily delegated within the line organization. Each production unit has an EHS coordinator who leads the local work.

Presentation Principles

Target group

The environmental report of the Perstorp Group addresses target groups that include employees, neighbors, customers, environmental authorities, suppliers, contractors, students, industrial organizations, politicians, media etc.

The collected data

Information about the work on environment, health and safety of the production units within the Perstorp Group during the calendar year 2004 was collected through electronic questionnaires that were sent to the EHS coordinator at each production unit, as well as through the data reported directly into the EHS database (EHS Frango) by the coordinators. The collected data were then submitted to the managers with legal responsibility and were approved by them. The Global EHSQ function in Perstorp, Sweden, then compiled the data and issued the reports on which the environmental report is based.

The environmental report of the Perstorp Group is based on the Group standards for environmental reporting and does not follow any individual international guiding principles. However, the Global Reporting Initiative (GRI) and the Deloitte&Touch checklist have served as sources of inspiration to a certain extent.

Presentation delimitation

Data from companies partly owned by the Perstorp Group includes only the proportion of the emissions and waste corresponding to the share of Perstorp's ownership. The environmental report includes the units owned by Perstorp during the whole calendar year 2004. Acquisitions and divestments during the year are not included. The indicators for previous years have been adjusted in order to be compared to the Perstorp Group operations of 2004. The 2004 environmental report is a refinement of reports from previous years.

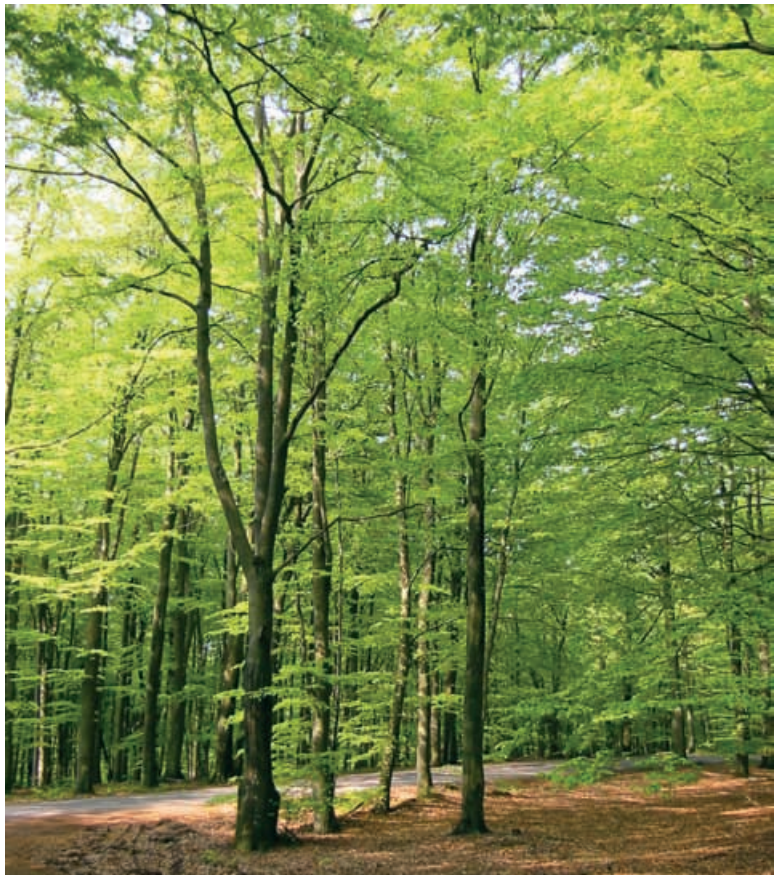


Contact with Perstorp

If you would like to submit your opinions or would like further information about the environmental work of the Perstorp Group, please contact Jan Petersson, head of environment, health and safety, or Margareta Midenstam, environmental controller.

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Glossary

Biofuels

Fuels from the vegetable kingdom, e.g. firewood, chips, bark, wooden pellets, energy forest, etc. Renewable fuels.

BOD

Biochemical Oxygen Demand. An indicator of the amount of oxygen consumed in biological decomposition of the organic compounds in water (normally measured during 7 days).

Bunded areas (dikes)

A concrete basin or the like, in which a storage tank is placed, enabling the collection of spillage without leaching to the ground and waterways.

Carbon dioxide (CO₂)

Colorless gas found in natural ecological cycles. It is formed in natural processes as well as in the combustion of various fuels. Carbon dioxide accounts for more than half of the greenhouse effect. Combustion of fossil fuels (but not biofuels) gives a net addition of carbon dioxide to the atmosphere.

Catalytic combustion

Technique for cleaning process exhaust gases with a typical cleaning efficiency of more than 99%. The cleaning takes place in a catalytic bed at a temperature between 200 and 400 °C.

CFC

Chlorofluorocarbons. Cooling agents contributing to the depletion of the stratospheric ozone layer, and to the greenhouse effect.

CFC 11-equivalent

The ozone-depleting potential of one kilogram of CFC 11.

CO₂

See carbon dioxide.

CO₂-equivalent

The contribution to the greenhouse effect equal to one kilogram of CO₂.

COD

Chemical Oxygen Demand. An indicator of the amount of oxygen needed for complete (chemically induced) decomposition of organic material to carbon dioxide and water.

EHS

Environment, Health & Safety.

Energy recovery

Secondary use of heat emitted from waste incineration, use of heated cooling water for heating purposes, etc.

Environmental management systems (EMS)

A method to integrate environmental work in the overall management system (e.g. ISO 14001).

Eutrophication

The enrichment of bodies of fresh water by inorganic plant nutrient (e.g. nitrate, phosphate).

Fossil fuels

Oil, coal, natural gas. Fuels consisting of organic hydrocarbons from sediments (i.e. remnants of prehistorical animal and plant life). A finite resource.

Gigawatt hour (GWh)

A measurement of energy consumption. One GWh equals one million kilowatt hours (kWh).

Greenhouse effect

Gases in the atmosphere that allow thermal radiation from the sun to penetrate the atmosphere but because they tend to absorb such radiation, they are feared to promote global warming. The principle greenhouse gases are carbon dioxide, methane, dinitrogen oxides (N₂O) and CFC compounds.

GWP

Global Warming Potential. The ability of a substance to contribute to the greenhouse effect. GWP is measured in CO₂-equivalents, i.e. carbon dioxide has a GWP of 1.

Halogenated hydrocarbons

Hydrocarbons in which one or more hydrogen atoms are substituted for fluorine, chlorine or bromine.

Halon

Brominated fluorocarbons. Used as fire-extinguishing agents, for example. Halons are harmful to the stratospheric ozone layer.

Hazardous waste

Waste that has been classified as a threat to health or the environment. Hazardous waste is handled and disposed of in accordance with specific rules.

HCFC

Hydrochlorofluorocarbons. Chlorofluorocarbons in which the halogenation is incomplete. These compounds are harmful to the stratospheric ozone layer but have less ozone-depleting potential than CFCs.

HFC

Hydrofluorocarbons. Incompletely halogenated fluorocarbons. These compounds have no ozone-depleting potential but they contribute to the greenhouse effect.

Hydraulic load

Flow-related load (e.g. m³/day).

Inorganic substances

Substances that do not contain carbon (e.g. salts, metals and minerals).

ISO 14000

A series of international standards for environmental management systems, life cycle assessments, environmental audits, etc.

Kilowatt hour (kWh)

Energy unit equal to 1000 watts for 1 hour.

Landfill

The use of an isolated area for final disposal of waste.

Liquified Petroleum Gas (LPG)

Propane and butane gas compressed into the liquid state.

Life-Cycle Assessment (LCA)

Method estimating the environmental impact of products over their entire life cycle - from raw material to waste.

LPG

See liquified petroleum gas.

LTA

Lost Time Accident, accident at work resulting in sick leave of one day or more.

LTAR

Lost Time Accident Rate, number of LTAs per million working hours.

Nitrogen (N)

An element. Emissions to air may cause eutrophication, which in turn may lead to oxygen deficiencies as dead plants decompose.

Nitrogen oxides (NO_x)

Umbrella term for nitrogen monoxide (NO), nitrogen dioxide (NO₂) and some other nitrogen oxides. NO_x is formed in combustion. Among other things, it contributes to acidification, eutrophication and ground-level ozone formation.

NO_x

See nitrogen oxides.

ODP

Ozone Depletion Potential. The ability of substance to deplete stratospheric ozone layer. ODP is measured in relation to CFC-11, which has an ODP of 1.

Organic compounds

Compounds containing carbon.

Ozone

A gas consisting of three oxygen atoms per molecule (O₃). The stratospheric ozone layer protects the earth from harmful levels of ultraviolet radiation from the sun. Ground-level ozone, however, is considered to be a pollutant. Among other things, it can harm plant life.

Phosphorous (P)

An element. Emissions to water may cause eutrophication, which in turn may lead to oxygen deficiencies as dead plants decompose.

Recycling

Housekeeping of resources by utilizing leftover or used materials in the manufacturing of new products.

Renewable energy

Energy from solar heat, wind power, hydropower and biofuels.

Responsible Care

A global program for continuous environmental improvement, initiated by the chemical industry.

Sulfur dioxide (SO₂)

Formed in the combustion of sulfur-containing fuels like coal, oil and peat. SO₂ contributes to acidification.

Sulfur hexafluoride (SF₆)

Isolating gas in electrical interlocks. One of the most aggressive greenhouse gases (very high GWP).

Suspended solids

Waterborne substances, mainly consisting of particles.

TOC

Total Organic Carbon. The amount of organic, carbon-containing material in water measured as elemental carbon.

VOC

Volatile Organic Compound.



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