

**Trelleborg AB  
Environmental Report 1999**

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Environmental is

### The polymer industry faces great environmental challenges

As newly appointed member of Trelleborg's Board of Directors, I have studied many of the Group's activities and ambitions in the environmental sphere.

For many years now, I have been occupied with environmental issues related to industrial and polymer research, and therefore I am satisfied to state that Trelleborg approaches environmental issues in a systematic manner.

In my estimation, the rubber industry faces considerable challenges in regards to environmentally adapting its processes and products. Demands from customers and society are increasing.

The key area for Trelleborg is in developing technologies that provide a highly effective utilization of resources, in replacing product components that are harmful to health and the environment, and in contributing to the establishment of methods and systems for the recycling/reutilization of worn out products.



Ann-Christine Albertsson  
Professor in polymer technology at KTH and member of the board of Trelleborg AB.

## Issues are of strategic importance



Hans Porat  
Vice President, Deputy CEO

Recent years have been interesting and intense from an environmental perspective. Several of the strategic commitments we have initiated are now starting to give results. At the same time as we are improving and developing our environmental work within the Trelleborg Group, new signals are constantly arriving from the surrounding world regarding the environmental effects of processes, products and transport. The signals are important to us, and they give rise to issues that are both interesting and complex. The demand for knowledge and openness in environmental issues is increasing. In our Environmental Policy, published in 1998, we emphasize the importance of including environmental and working-environment aspects in our day-to-day work at all times. This prepares us to discuss our environmental work with everyone who is affected by Trelleborg's activities and products.

Our work of introducing certified environmental management systems, which started in 1998, is now starting to produce results. The environmental

reviews that have been carried out at more than forty plants within the Group provide us with sound insight into the Group's strengths and weaknesses in regards to the environment, health and safety. Training activities and internal environmental audits contribute to maintaining focus on environmental issues. Therefore it is satisfying that eleven plants were certified in accordance with the requirements of ISO 14001 in 1999, and I confidently anticipate a substantial number of certifications during year 2000. Our commitments to reducing the effects of our processes and products on health and the environment are also of great importance. An interesting example of this is the work carried out at Trelleborg Forest & Farm, which resulted in the removal of harmful HA oils from tractor tires and other large tires.

This is the second Environmental Report of the Trelleborg Group, and I hope it provides interesting insight into the activities carried out by the Group in pursuit of a sustainable development of society. I would also like to express my appreciation to all the Trelleborg employees who contribute to the Group's environmental work via their knowledge and commitment.

Hans Porat



# Trelleborg AB today

Trelleborg AB is a world-wide industrial group that focuses on comfort, safety and the environment.

From its origins in the 1890s as a raw-material based rubber manufacturer, Trelleborg is today an expansive group with a well-developed capacity to employ technology for the good of human society.

The industrial company is founded on unique technological polymer know-how, a foundation on which the Group develops, manufactures and markets antivibration products, specialized tires for forestry and farming machinery, protective products, impermeable coatings, sealing strips and more.

## The activities of the Industrial Sector are distributed in the following business areas:

- Trelleborg Automotive  
(Business Area President: *George Caplea*)
- Trelleborg Wheel Systems  
(Business Area President: *Anders Petterson*)
- Trelleborg Engineered Systems  
(Business Area President: *George Brunstam*)
- Trelleborg Building Systems  
(Business Area President: *Peter Suter*)

The needs of the customers served by all the business areas are becoming more and more specialized. This demands that the Trelleborg Group – in addition to offering competitive prices – must also comply with customer needs related to global presence and high technological competence, and assure our customers

### Facts in brief

Net turnover 1999 (1998):	23,345 MSEK (25,041)
Operating profit 1999 (1998):	1551 MSEK (736)
Number of employees 1999 (1998):	12,655 (13,895)
Countries with Group company (no.):	28
Number of shareholders:	65,411
President and CEO:	Fredrik Arp
Vice President and Deputy CEO:	Hans Porat
Vice President Environmental Affairs:	Torbjörn Brorson



that we comply with environmental and quality requirements.

Within the Distribution Sector, which was divested in 1999, the common denominator is the distribution of products for the building industry, construction and more. The Sector covers the respective markets through well-known names:

- Ahlsell  
(Business Area President: Göran Näsholm)
- Bröderna Edstrand  
(Business Area President: Rolf Forssell)
- Reynolds  
(Business Area President: Gerard Lièvrè)
- Starckjohann  
(Business Area President: Vera Vertanen)

Efforts to concentrate our activities accelerated in 1999. Among other measures, the Trelleborg Group entered into an agreement whereby Nordic Capital acquired a 51 percent interest in the Group's Distribution Sector. The financial year also meant other changes like the spin off to shareholders of the holdings in the mining and metalworking company, Boliden and the divestment of the Group's shareholdings in BPA and PEAB. The previously fully-owned investment company, Sorb Invest, was accepted for listing on the stock exchange, and the Group sold the English envelope company, Chapman, and the Belgian plastics company, Trelleborg NV-SA. At year-end 1999, an agreement was contracted with the UK's Invensys stating that Trelleborg intends to acquire BTR AVS, which has some 4,000 employees. BTR AVS manufactures antivibration products for the automobile industry.

# Environment Policy

The Environmental Policy stipulates the direction and objectives of our environmental work at the same time that we clarify the tasks that lie ahead. The Environmental Policy constitutes the framework for the Group's activities that concentrate on the environment. According to the Policy, each plant shall develop its own environmental policy as part of the ISO 14001 system.

Based on our approach to environmental issues, we are dedicated to complying with national and international commitments that strive for a sustainable society in the long term. Our objective is that the activities of the Trelleborg Group shall not harm the environment or have a negative effect on human health. The environmental aspects shall be integrated in the day-to-day operations of the Group.

- ◆ We shall economize on energy, water and other natural resources. The environmental aspects shall be taken into account whenever we choose raw materials, chemical products and distribution systems.
- ◆ We shall minimize waste and emissions from our production plants and from our other activities.
- ◆ We shall have safe and sound workplaces and ensure that our personnel training programs prepare our employees to perform their work in the best possible way.
- ◆ In our research and development operations, we shall strive for environmentally sound technologies, products and packaging.
- ◆ Whenever we change processes, plants and products, we shall use the opportunity to make environmental adaptations.
- ◆ We shall maintain sound emergency preparedness by systematically evaluating the risk of accidents, fires and uncontrolled emissions to the environment.
- ◆ We shall inform customers, suppliers and contractors about our environmental work and, in cooperation with them, strive to achieve mutual improvements.
- ◆ We shall provide open and objective information about our environmental work to our employees, the general public and the authorities.
- ◆ We shall comply with current environmental legislation and develop long-term plans related to national and international legislation in the areas of the environment, health and safety.
- ◆ By the beginning of the 21st century, we shall comply with the requirements of ISO 14001 and/or EMAS at our existing production plants. Tasks and responsibilities within the framework of the environmental management system shall be clarified. Environmental objectives and plans of actions shall be prepared at every plant.
- ◆ We shall evaluate environmental performance by monitoring emissions and through frequent environmental audits. We will continually strive to improve our environmental performance.



# From plantations to test tubes



Polymer materials – one of which is rubber – play an important role in our everyday life. Thanks to the great variation capacity and adaptability of polymers, the many areas of application and utilization for rubber and other polymers are increasing. Presently, the annual world-wide consumption of rubber is almost 16 million metric tons. At first, natural rubber was the only raw material, but



today synthetic rubber varieties provide many options for customizing increasingly sophisticated materials for complex technical applications. It was not until the 1940s however that synthetic rubber – rubber based on oil products – became a serious competitor to natural rubber.

Natural rubber is extracted from the sap of the rubber tree *Hevea brasiliensis*. The tree's original habitat is the Amazonian rain forests, but in 1876, Englishman Henry Wickham shipped a consignment of seeds from Brazil to London. The seeds which survived the journey were gradually planted in Great Britain's colonies in South-east Asia thereby contributing to the development of a global industry.

## **The automobile industry demanded increased rubber production**

In the early 1900s, the rapidly growing automobile industry and its need for tires meant that rubber was an expensive commodity in short supply. The high rubber prices attracted investor interest. The Dutch and British started buying up fields in their colonies in South-east Asia, mainly in present-day Malaysia, Indonesia and Sri Lanka. This influx of capital marked the disappearance of the former small, family plantations based on wild-growing trees, and huge plantations were developed.

Profits were not long in coming, and investments in fields and machinery were

soon paid back. The British government was pleased to have such a lucrative activity in its sphere of interest and built roads and railways to the newly cleared areas. It also facilitated the immigration of labor from primarily southern India and China.

## **Increasing interest in synthetic rubber**

A long time passed before synthetic rubber became a serious competitor to natural rubber. During the First World War, the lack of raw materials prompted the Germans to start manufacturing practical synthetic rubber.

It was still very inferior to natural rubber, but the attempt had the strong financial backing of the German government. After the war, overproduction and large inventories of natural rubber led to falling rubber prices, and synthetic alternatives lost interest. Except for Germany and the Soviet Union however, which maintained this expensive production in their efforts to become self-sufficient.

## **Many different properties**

Natural rubber's inability to withstand oil is a weakness that has prevented its appli-







cation in many areas. The manufacture of the first nitrile rubber in Germany in the early 1930s was a milestone marking the first rubber variety with improved resistance to oil products.

There was great interest in both the Soviet Union and the US in developing various kinds of synthetic rubber. The US automobile industry accounted for three-fourths of the world's rubber consumption, while Great Britain and The Netherlands controlled production and pricing of the raw material.

It is not surprising that early attempts in the US were aimed at creating a synthetic rubber designed for the automobile industry. This eventually resulted in chloroprene. The most highly beneficial properties of chloroprene rubber included its good resistance to oil products and fire.

The occupation of large parts of South-east Asia in the Second World War gave Japan a firm grip on the natural-rubber production. As a result, the supply to large parts of the world diminished, and research into synthetic rubber varieties was quickly renewed. Formulas were improved and the manufacturing process took place in large factories which resulted in price decreases. The properties of synthetic rubber can be customized for various applications. The great chemical breakthrough was the discovery of polyisoprene, a synthetic copy of natural rubber.

Today, synthetic rubber accounts for sixty percent of the world's rubber consumption. The raw materials for the synthetic rubbers are various petroleum products. There are now twenty-some im-

portant synthetic rubbers, including styrene-butadiene rubber, nitrile rubber, ethene-propene rubber, butyl rubber and chloroprene.

The different rubber varieties have respective advantages and drawbacks in relation to durability, heat resistance, impenetrability, and resilience to wind and weather. Many different rubber products are manufactured within the Trelleborg Group and are based both on natural rubber and synthetic materials.

## What is a...

**POLYMER**  
The molecules in a polymer consist of small structural units whose pattern repeats. The name is derived from the Greek words *poly*, many, and *meros*, parts. There are thousands of various polymers, one of which is rubber.

**ELASTOMER**  
Polymer material with great elasticity. The material can be extended to at least twice its original length without breaking and resumes its shape after the strain is released.

**RUBBER**  
An elastomer which can be cross-linked. Cross-linked rubber retains its shape when heated or subjected to moderate pressure. After it has been stretched, the rubber returns to its original size. Rubber is divided into natural and synthetic rubber. Natural rubber is mainly extracted from trees, while synthetic rubber is created from chemicals.

**PLASTIC**  
A polymer material that can be shaped, but which has limited elasticity.

**THERMOPLASTIC ELASTOMER**  
A plastic material that is as elastic as rubber. The same production methods are used to make plastic and thermoplastic elastomers, but the material's properties resemble that of rubber.



# Environmental work of the Trelleborg Group

## **Demands from society and interested parties**

The attitude to environmental issues has changed in recent years. Increased insight by decision-makers and corporate executives into the connection between the impact on the environment by various industrial activities, more effective environmental legislation, as well as increasing intolerance by the general public to damage to the environment and human health has resulted in more stringent demands on manufacturing companies and other sectors of our society.

As far as the Trelleborg Group is concerned, many interested parties greatly influence the Group in the environmental sphere:

◆ **Customer** interest has increased. As a supplier to many large industries with high ambitions in the environmental area, Trelleborg now faces demands to implement a number of concrete environmental measures. An example of a demand is that the products should not contain certain chemical substances that are harmful to the environment and human health. More and more customers are now also demanding that suppliers must introduce certified environmental management systems and openly account for their environmental performance.

◆ **Investors, shareholders and the mass-media** are also becoming increasingly interested in environmental issues. One result of this interest are new requirements in Sweden's Annual Accounts Act that require companies to include

specific environment-related information in the annual accounts. We have also experienced in 1999 that Trelleborg has had to answer a substantial number of inquiries from investors and foundations about the Group's environmental strategy, environmental investments and emission data. Interest in the connection between environmental issues and issues concerning ethics and morality has also increased. A number of articles in the mass media during the year have focused on the working-environment situation at the plant located in the town of Trelleborg. As part of our policy of increased openness, the Trelleborg Group published its first environmental report during the financial year.

◆ In the **sphere of environmental legislation**, ongoing efforts are striving to increase the legislative harmonization between various countries. This is especially obvious in the EU, and we are now seeing the gradual introduction of joint directives and regulations in the European countries. As far as Trelleborg is concerned, we can state that the requirements within many strategic areas have been heightened or will be heightened in most countries. The following examples are areas in which Trelleborg's processes and products are affected:

- Issues concerning the chemical hazards to the environment and human health, in which the demand for knowledge and the need for risk-reducing measures are increasing.

- Waste issues, in which increased taxes, fees and other measures are directed at reducing the volume of waste deposited in landfills.

- Emission issues, in which particular interest is focused on the emission of solvents (VOCs) and rubber fumes.

- Issues concerning safety and health in the working environment, in which there are increasing demands for risk analyses, documentation, training and other measures.

- Product- and transport-related issues in which there are increasing demands for detailed information on the environmental impact of the products and transport.

- Global environmental issues like the greenhouse effect and the depletion of the ozonlayer in

which international measures (like the Kyoto Protocol) are resulting in societal demands for the implementation of relevant measures by manufacturing companies.





### Trelleborg's environmental organization

The Group's vice president for environmental affairs is responsible for coordinating the environmental and working-environment issues within the Trelleborg Group. The formal responsibility for these issues however lies with the various line organizations. The local site managers are the key persons in this context, and they shall run their units in accordance with:

- ◆ Legal requirements and other regulations (i.e. customer requirements),
- ◆ Trelleborg's Environmental Policy and the Environmental Management System manual,
- ◆ Requirements stipulated in ISO 14001.

Environmental managers / coordinators are employed at most plants. In many cases, this is a full-time position, but at some plants the position also entails other tasks, such as quality manager, chemist, maintenance manager, etc. The most important tasks of the environmental coordinators are to assist the local company manager with environmental

expertise, to handle contacts with the environmental authorities, to coordinate monitoring programs and collect data, to initiate and carry out training programs, as well as to implement and maintain ISO 14001.

### ISO 14001 gains ground

Since 1998, Trelleborg's work has been guided by an Environmental Policy established on a Group level. The company's ambitions in the environmental area and its direction for the environmental work are reflected in the Policy, which is found on page 5 of the Environmental Report. To achieve target-oriented and structured activities, and to comply with increasing customer requirements, the environmental work of the Group and of the individual plants is based on the requirements stipulated in the environmental management standard ISO 14001. In 1998 and 1999, many activities have been carried out that are aimed at the implementation of ISO 14001.

The work has been successful and has resulted in many concrete improvement measures, and in the fact that several plants have attained the coveted ISO certification. More than eighty persons in Sweden, Denmark, The Netherlands, Belgium, Spain and the US have partici-

pated in the training activities, and we expect a substantial number of certificates to be acquired in year 2000.

The table below provides an overview of activities that were carried out in 1998 and 1999.

Starckjohann and Reynolds are not included in the activities. At Sorb Invest, which was sold during the financial year, environmental reports have been carried out at the Group's plants.



### ISO 14000 within the Trelleborg Group, 1998-99

Activity	Industrial Sector <sup>1)</sup>	Ahsell <sup>1)</sup>	Bröderna Edstrand <sup>1)</sup>
Six-day ISO 14001 training program for project managers <sup>2)</sup>	35	2	5
Environmental reviews <sup>3)</sup>	31	2	6
Environmental audits <sup>3)</sup> (including environmental-auditor training)	9	2	6
ISO 14001 certificate	5	1	1 <sup>4)</sup>
Plants scheduled for certification in year 2000	15-20	1	–
Certified environmental auditors (ISO 14012)	1	0	0

<sup>1)</sup> Number of plants or organizations.

<sup>2)</sup> Around 85 persons have been trained.

<sup>3)</sup> In addition to the environmental reviews and audits which have been accounted for, a substantial number of environmental audits have been carried out during the year to identify environmental risks at companies acquired by the Group or which the Group intends to acquire. In addition, a number of internal environmental audits have been carried out at the various plants.

<sup>4)</sup> The certificate covers 6 plants.

**Environmental reviews help identify environmental aspects**

The preparation of the environmental reviews includes an assessment of the way in which the individual plant's processes, products and services affect the environment. In 1998 and 1999, environmental reviews were conducted at most of the Group's plants around the world. Many of the reviews were made by external consultants, while others were made by a team of specialists within the Group. A common feature of the reviews is that they were made and accounted for in accordance with standardized methodology. The various plants within Trelleborg have been charted in regard to environmental aspects and the management of environmental issues. The reviews cover the following main areas:

- identification of legislation and other requirements,
- assessment of the company's environmental aspects and impact,
- the company's conservation measures for energy and raw materials,
- the effect of environmental issues on the choice of production methods, packaging and transport,
- the effort of suppliers and contractors on the plant's environmental aspects,
- the prevention and limitation of environmental accidents,
- examination of existing routines for controlling the environmental work,
- evaluation of the result of previously reported near-accidents,
- analysis of viewpoints of interested parties (i.e. customers and employees).

The environmental review, which in many respects is reminiscent of a conventional environmental audit, includes the following main activities: plant inspection, documentation reviews and interviews with several key persons. The environmental review is summarized in a written report, which within the Trelleborg Group has the following basic format:

Environmental reviews within the Trelleborg Group	
<b>1. Background for the environmental management project within the Group and at the plants</b>	
<b>2. Scope of the environmental review, administration costs</b>	
<b>3. Description of the company and the production process</b>	
<b>4. Environmental legislation that is relevant to the company.</b>	
<p><b>5. Environmental aspects</b></p> <ul style="list-style-type: none"> <li>• Localization</li> <li>• Contamination risk for soil and groundwater</li> <li>• Utilization of natural resources (water, energy, raw materials)</li> <li>• Risks posed to the environment and human health by chemical products and hazardous substances</li> <li>• Air emissions</li> <li>• Discharge to aquatic environments</li> <li>• Noise and vibrations in the surrounding environment</li> <li>• Waste</li> <li>• Fires, spills and other abnormal events</li> <li>• Environmental impact of packaging</li> <li>• Environmental impact of products</li> <li>• Environmental impact of transport</li> <li>• Health and accident risks in the working environment</li> <li>• Environmental impact of suppliers and subcontractors</li> </ul>	<p><b>6. Present system for managing environmental issues</b></p> <ul style="list-style-type: none"> <li>• Environmental policy</li> <li>• Environmental objectives and plan of action</li> <li>• Organization of the environmental work</li> <li>• Training programs</li> <li>• Documentation and document control</li> <li>• Operational control</li> <li>• Surveillance, measurement and control programs</li> <li>• Nonconformance and corrective and preventive measures</li> <li>• Records</li> <li>• Internal environmental audits</li> <li>• Management's commitment and participation in the environmental work</li> </ul>

The reviews show the strengths and weaknesses in the company's present environmental and working-environment efforts and propose measures to be taken

as soon as possible. The environmental reviews have resulted in many improvement measures at the various plants. The individual plant subsequently utilizes the

environmental reviews in its ongoing identification of the significant environmental aspects and in the implementation of ISO 14001.



## Significant environmental aspects within the Trelleborg Group

Environment and working-environment aspects	Industrial Sector	Distribution Sector
Localization	■	■
Soil and groundwater (contamination)	●	▼
Consumption of natural resources (raw materials)	■	▼
Consumption of natural resources (water, energy)	●	▼
Utilization of chemical products	●	▼
Air emissions	●	■
Noise (outdoor)	■	■
Discharge to aquatic environments	▼	★
Waste	●	■
Spills, fires and unforeseen situations	■	■
Products	●	●
Packaging	▼	●
Transport	■	●
Working-environment risks (exposure to chemicals)	●	▼
Working-environment risks (accidents)	●	▼
Working-environment risks (ergonomics, noise)	●	■

★ Of minor importance

▼ Low priority

■ Medium priority

● High priority

### Environmental aspects

The environmental reviews provide valuable insight into the environmental situation at the various plants. From a Group perspective, we can ascertain that both the Industrial Sector and the Distribution

Sector have many important environmental aspects. The purpose of ISO 14001 is to attain an improvement program that attends to the important environmental aspects in order to reduce the

environmental impact and bring about conservation measures and commercial advantages. The table above provides an overview of the Group's important environmental aspects.



# Account of the Group's environmental performance

## Data collection methods

For some years now, the Trelleborg Group has been collecting information on environmental performance from the various plants. The environmental report provides an overview of the environmental performance within Trelleborg. Each plant has contributed relevant data in accordance with the Group's standard for environmental reporting. The submitted data has been verified using random samples and comparing them with the environmental reviews which the plants have submitted to the authorities, and with the data which is submitted in connection with the environmental reports. The present report concerns year 1999.

Some of the diagrams refer to a broader time perspective however. The key data accounted for is described in texts, tables and diagrams.

Wherever applicable, 1998 data is presented in parentheses after the 1999 data.

The various business areas have been divided up wherever relevant. The reporting on the Distribution Sector is presented separately with a view to the fact that this sector was divested from the Group during 1999. A total of 53 organizations have contributed to the report.

## A few events during 1999

The present environmental report clearly shows that many measures have been taken to improve the environmental and working-environment situations at the Group's manufacturing units. Some of the measures include changing to a more environmentally sound fuel, improved

sorting-at-source of waste, reduced use of solvents, decontamination of surface and groundwater, and replacement of chemicals in processes and products that are hazardous to the environment and human health.

The Trelleborg Group has around fifty manufacturing units in fifteen countries in Europe, North America, South America and Asia. Most of the plants are under obligation to apply for permission in accordance with the laws of their respective country and are therefore regularly monitored by regional or local authorities. The Group operates some twenty companies in Sweden that are under obligation to apply for permission or to register. These plants have been granted permission in accordance with current legislation on stipulated terms. Every year, the plants account for emission data and for their compliance with the terms in separate environmental reports. The environmental reports are approved by the respective supervising authorities.

In 1999, Trelleborg Building Systems received renewed permission for the companies in Bor and Rydaholm. For the plant in Trelleborg, a trial-period case has been in progress since 1994 concerning solvents and rubber fumes. The case was heard by the Environmental Court in December 1999, and the final terms were laid down at the beginning of year 2000. Trelleborg Building Systems in Höganäs and Trelleborg Rubore in Kalmar are currently working on a permit application in accordance with the requirements stipulated in the new Environment Act. The application under the Environment Act was submitted during the year for Trelleborg Automotive's plant in Sjöbo. Applications in accordance with environmental legislation have also been submitted in other countries, such as the US.

# Utilizing natural resources

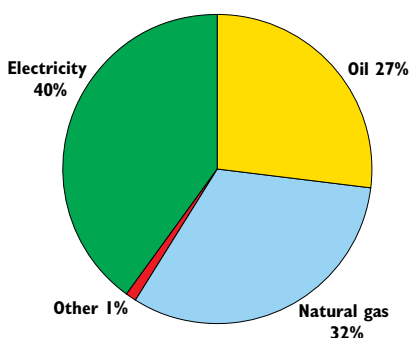
## Soil issues

The significance of soil and groundwater contamination has increased in many countries. In several countries where Trelleborg operates, the environmental authorities have carried out programs for charting the scope of contaminated industrial soil. The Netherlands and the US are examples of such countries. In several cases, this has resulted in demands for the implementation of decontamination measures at Trelleborg's plants. Soil contamination has also been discovered at Trelleborg's factories in connection with excavation and building projects. Finally, Trelleborg carries out routine examinations of the soil and groundwater situation in connection with company acquisitions. The above activities have resulted in the discovery within the Group of many cases of soil contamination. An overview of the current situation is provided in the adjoining table.

## Energy consumption

Energy within the Group is used for heating, ventilation, cooling, processing, equipment and transport. The total energy consumption of the Trelleborg Group in 1999 (not including transport) amounted to 760 (623) GWh, of which oil accounted for 204 (123) GWh, electricity 304 (255) GWh, natural gas 247 (247) GWh and other sources for

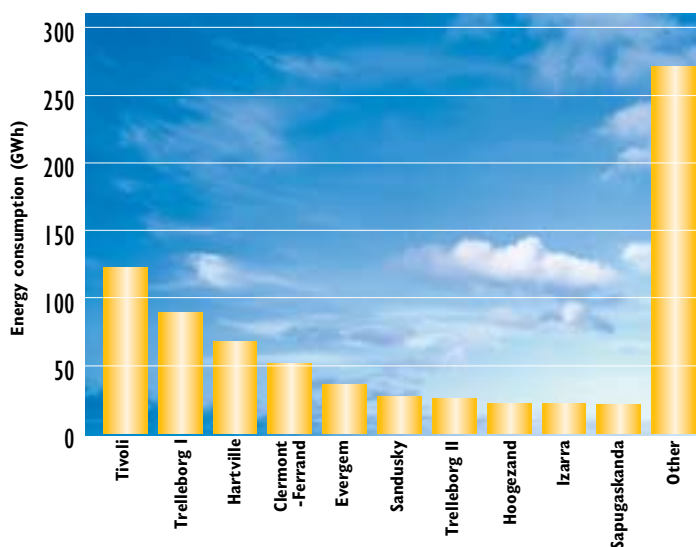
Energy consumption, classified by energy source



5 (7) GWh. Consumption has increased by roughly 22 percent compared to 1998. This is mainly due to the fact that many plants were acquired during the year, such as the large plant in Tivoli, Italy, and that the year's environmental report also includes plants that were not accounted for in 1998.

Plant	Type of pollution	Status
Trelleborg I, Sweden	Heavy metals, solvents	Extensive clean-up operations carried out in 1999.
Trelleborg Trebolit, Sweden	Creosot	Investigations in progress.
Ohs, Sweden	Petroleum hydrocarbons	Investigations completed. Investigations in more detail are planned.
Ridderkerk, The Netherlands	Heavy metals, oil, solvents	Clean-up completed.
Ede, The Netherlands	Oil	Clean-up completed.
Hoogezand, The Netherlands	Processing oil	Clean-up in progress.
Herentals, Belgium	Chlorinated and unchlorinated solvents	Investigations completed. Clean-up being planned.
Evergem, Belgium	Heavy metals, oil, solvents	Investigations completed. Clean-up being planned.
Tivoli, Italy	Chlorinated and unchlorinated solvents in groundwater	Very detailed investigations have been carried out. Possible clean-up measures have not been scheduled.
Clermont-Ferrand, France	Heavy metals (lead, zinc)	Clean-up completed.
Sandusky MI, USA	Chlorinated solvents.	Clean-up in progress.
South Haven MI, USA	Solvents	Clean-up completed. Certain supplementary investigations in progress.
Dawson GA, USA	Chlorinated solvents.	Investigations in progress.
Trenton NJ, USA	Hazardous waste and other waste	Clean-up completed.

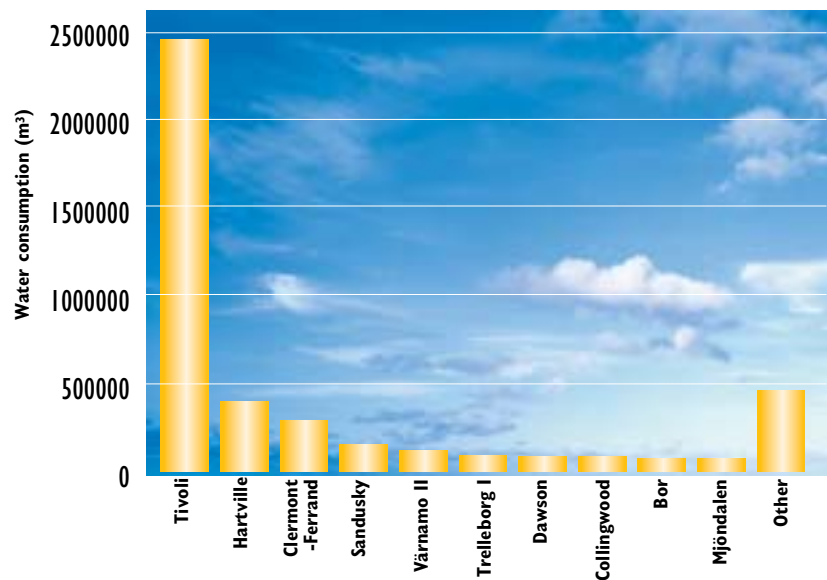
Energy consumption (oil, natural gas, electricity, other) at the various plants



As is stated elsewhere in the report, energy conservation measures have been carried out at several plants.



Water consumption at the various plants



### Water consumption

Water is mainly used for cooling, cleaning and sanitary purposes. In all, a total of 4.3 (1.6) million cubic meters of water were used at the plants accounted for in this report. Water consumption is high at several plants, and we can verify an overall increase in water consumption within the Group since last year. The increase is primarily due to the fact that more plants are now included in the reporting system, and that the plant in Tivoli (Italy), which

was acquired during the year, uses a substantial amount of water.

Around 74 percent of the water comes from on-site wells or from nearby rivers or lakes. Around 26 percent of the water comes from municipal waterworks. At several plants, the consumption of water has been considerably reduced in recent years. This has primarily been achieved by installing recirculating systems for cooling water.

## Chemical issues

A rubber compound not only consists of rubber polymers but also of many various chemical components that contribute to the desired properties of the final product. Below are some examples of substances that are added in the manufacture of rubber compounds. Many of the substances are transformed by the chemical reactions in the vulcanization process and are therefore not found in the final product.

- ◆ Carbon black is used as a filler to increase the strength of the compound. Chalk and clay are other fillers.

- ◆ During the vulcanization process, sulfur, tin chloride or peroxides are also added as accelerators, which speed up the chemical processes.

- ◆ Antioxidants and antiozonants are used to protect rubber against oxidation and ozone flaws, i.e. to prevent the aging of the material.

- ◆ To regulate stiffness and to simplify the manufacturing process, various mineral oils are used as plasticizers, e.g. aromatic oils (HA oils).

- ◆ In certain instances, pigments are added to light-colored mixtures, anti-static lubricants are added to reduce static electricity and flame retardants are added to reduce combustibility.



Certain chemical substances used within the Trelleborg Group may have an effect on human health and the surrounding environment. Many of the substances are directly connected to rubber production, while others are used for purposes like degreasing and painting metals, manufacturing polyurethane or as lubricants and technical oils. The following chemicals or groups of chemicals are of particular interest.

- ◆ HA oils (oils with a high amount of carcinogenic polyaromatic hydrocarbons, PAH) are used as plasticizers.
- ◆ Organic solvents (aromatic, chlorinated) are used for purposes like manufacturing rubber solutions and glue solutions. Solvent-based colors are used in certain contexts.
- ◆ Nitrosoamine-generating accelerators. Certain amines, like TMTD, can give rise to carcinogenic nitrosamines. ETU and MOCA are other accelerators that are hazardous to human health.
- ◆ Lead and lead compounds are used as a processing agent, for example, in the manufacture of certain kinds of hoses.

◆ Zinc oxide is a component of most rubber compounds. Intense investigations are currently being carried out within the EU to clarify the toxicity of zinc oxide in the environment. The substance is suspected of being highly toxic to aquatic organisms. If zinc oxide becomes classified as highly toxic to aquatic organisms, this would have considerable repercussions within the rubber industry. One of the results would be that most rubber compounds would be required to be labeled accordingly.

◆ Flame retardants (chloroparaffins, bromine compounds). Some of these compounds are harmful to human health and the environment.

◆ Phthalates such as dioctyl phthalates (DEHP) are used as plasticizers in certain kinds of rubber. The substance is suspected of causing hormonal disturbances.

◆ Diisocyanates are used for manufacturing polyurethane (like rollers and solid tires). Isocyanates can cause respiratory illnesses and allergic reactions. Formaldehyde is another substance which can cause allergic reactions.

◆ Kieselgur is a filler containing silica quartz. Exposure to kieselgur dust can cause silicosis.

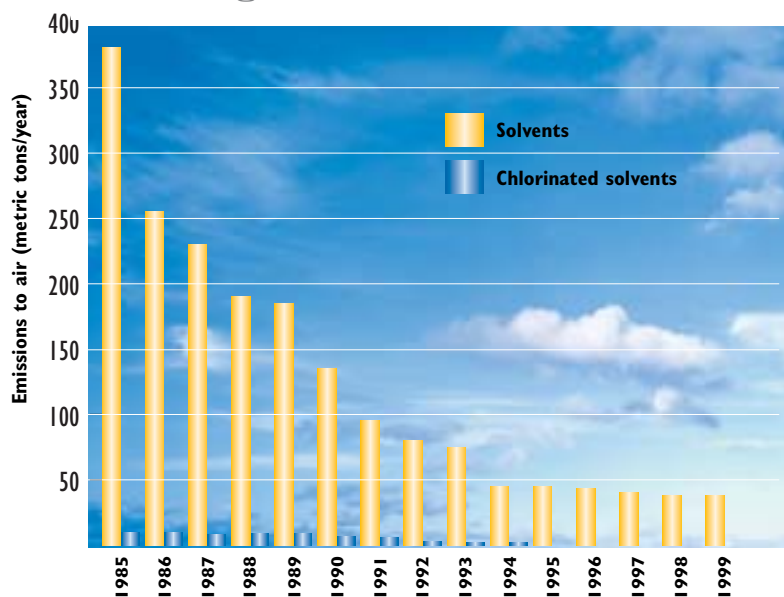


In many applications, the use of chemical products that are injurious to human health and the environment has been reduced in recent years. At many factories the use of solvents has been reduced through technical processing measures which are first-rate from both a working-environment and an environmental viewpoint. In many cases, the measures have been combined with emission abatement equipment which has helped to reduce emissions to the atmosphere. An example of this is the plant at Trelleborg which is shown in the diagram below.

At most plants, the use of chlorinated solvents has been stopped, lead and zinc oxide utilization has been reduced and harmful accelerators have been replaced by less harmful alternatives. In cases where a hazardous substance has not been able to be replaced, exposure in the working environment has been reduced through closing the processes, encapsulating equipment and using raw materials that do not produce dust.

During the year, mercury has been removed from the sewage system and old technical equipment at the plant in Trelleborg. In all, several kilos of this hazardous substance were removed from the factory.

Technical processing measures and purification techniques have reduced the emission of solvents at the plant in Trelleborg, Sweden





# Air emissions and discharge to aquatic environments

## Air emissions

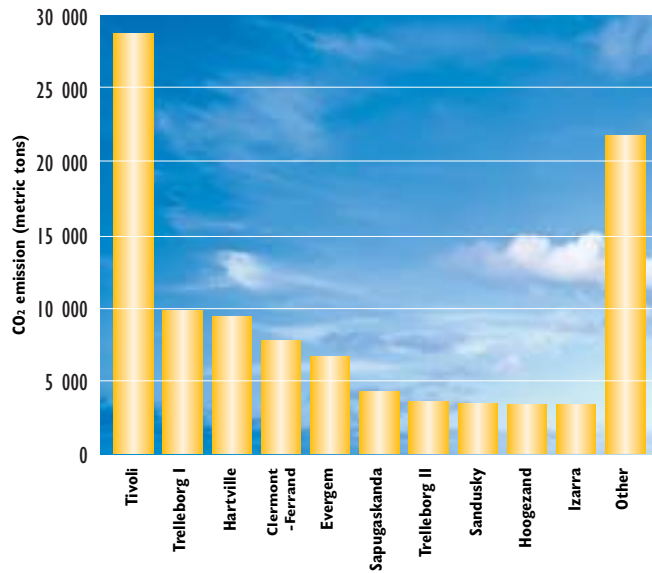
Air emissions mainly consist of solvents (VOC), rubber fumes, dust, carbon dioxide, nitrogen oxides and smelly substances. The total emission of solvents (VOC)

se from last year is mainly due to the fact that new plants have been added to the Group. Emissions resulting from the district heating, transport and processes are not included in the Group's accounting

of its environmental performance at the present time.

In 1999, the emission of sulfur dioxide and nitrogen oxide (NOx) from energy production amounted to 193 (136) metric tons and 103 (80) metric tons respectively. In 1999, the plant in Izarra, Spain has replaced high sulfuric oil with low sulfuric oil, which

Carbon dioxide emitted to the atmosphere by the energy production at the various plants

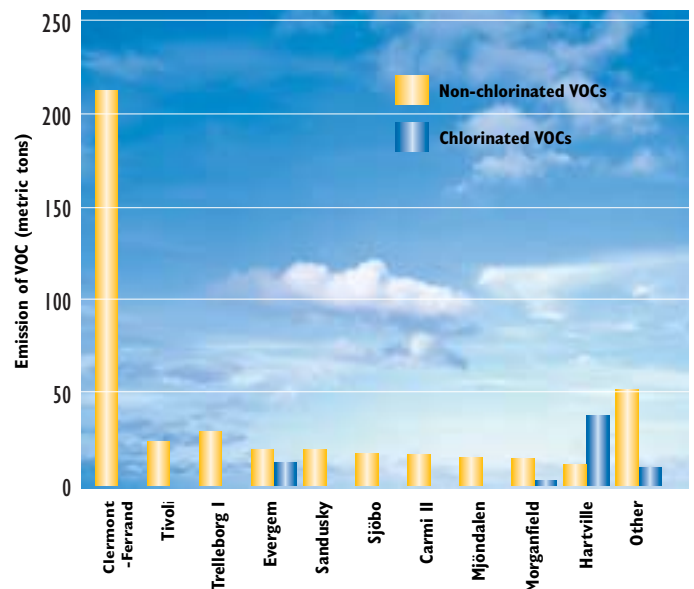


in 1999 within the Group amounted to around 505 (516) metric tons, which is less than compared to 1998. The emission of both chlorinated and non-chlorinated solvents has been considerably reduced through the installation of purification systems and by modifying processes. The total emission of chlorinated solvents was 63 (65) metric tons in 1999.

The emission of carbon dioxide originates primarily from the combustion of oil and natural gas at the company's energy plants and from conveyance by cars, trucks, planes and diesel-powered trains. The total emission of carbon dioxide in 1999 from internal energy production was roughly 101,400 (85,000) metric tons. The comparative increa-

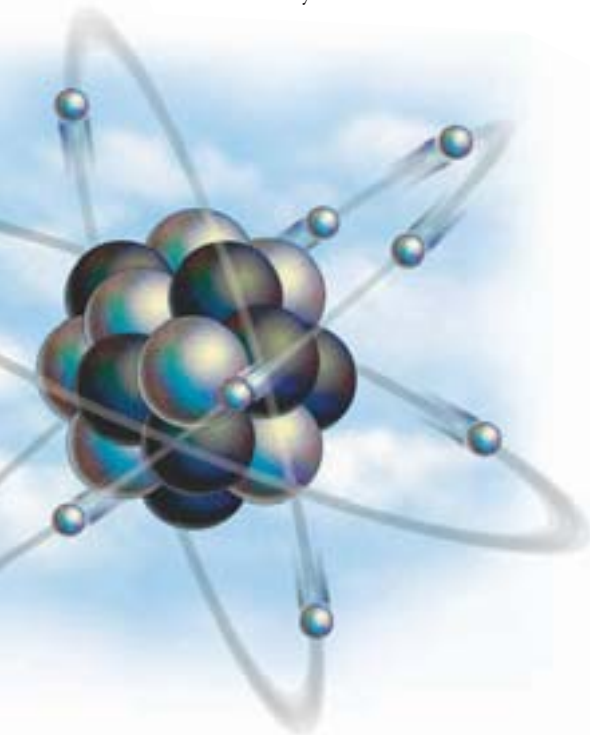
will cause a considerable reduction in the emission of sulfur dioxide. Other emissions to the atmosphere consist of smelly substances, gasses and dust, which are some of the substances emitted by the vulcanization processes. Rubber fumes can contain low concentrations of several hundred various substances, several of which are hazardous to human health

Emission of VOC to the atmosphere



# Waste issues

and the environment. The concentration of the individual substances is normally low. In many different countries the wor-



king-environment and environmental authorities are very interested in issues concerning rubber fume properties. Several of the Group's plants have had purification systems for quite some time to reduce the emission of rubber fumes, and additional systems are on the drawing board.

## Discharge to aquatic environments

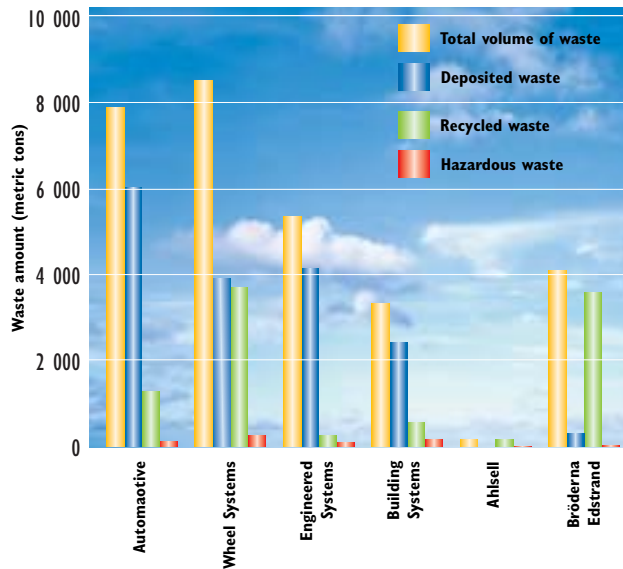
The discharge of water in the Industrial and Distribution sectors is relatively limited. In many cases the factories are connected to municipal wastewater treatment plants. There have been no reports of any disruptions at wastewater treatment plants or recipients.

Waste volumes within the Group are considerable, and large quantities of waste are still taken care of by being deposited in landfills. The total volume of waste was roughly 31,000 metric tons, of which 17,000 tons (17,400) was landfilled. Around 11,000 (7,600) metric tons was sorted at source and reused as materials, or alternatively as energy sources.

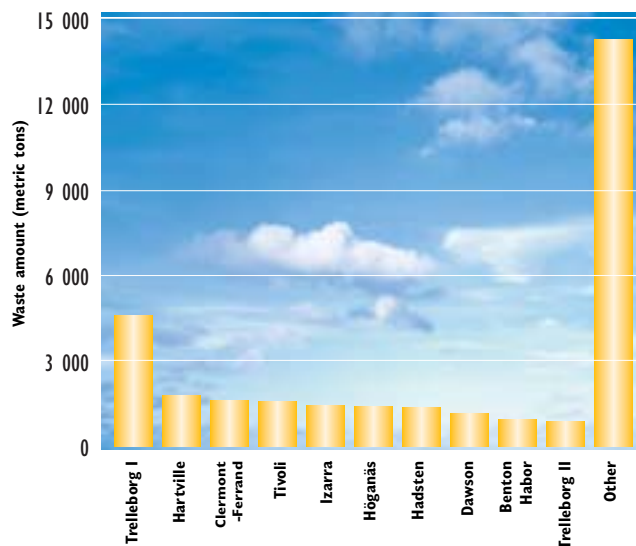
Hazardous waste is reclaimed through destruction at permitted plants in the countries where Trelleborg operates.

In 1999, the total volume of hazardous waste amounted to 674 (545) metric tons. In addition to this, around 160 metric tons of hazardous waste was created near the town of Trelleborg during the year in the form of water contaminated with solvents from a soil clean-up process.

Distribution between various kinds of waste in the Group's business areas



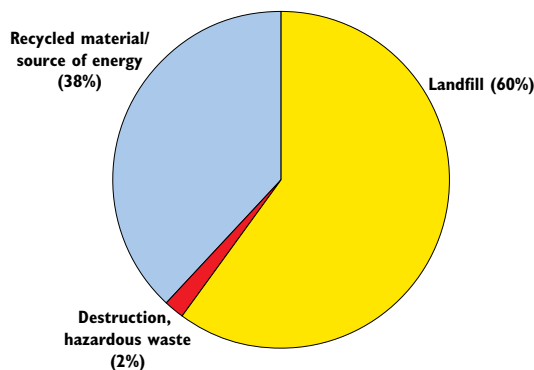
Total amount of waste from various plants



In connection with the ISO 14000 efforts, many plants have outlined programs for improving sorting-at-source and minimizing waste, like at Ahlsell's

logistics center, Trelleborg II, Izarra, Burgos and Bröderna Edstrand. Nevertheless, the waste-handling costs of the Trelleborg Group are still substantial.

Waste handling methods







## Our products and the environment

Several of the products manufactured by Trelleborg contribute to reducing the impact on the environment and providing people with increased comfort. An example of the positive aspects are noise retardants and antivibration units for vehicles, as well as energy conservation and noise inhibition through rubber sealants in windows and doors.

Rubber also provides environmental advantages in that the material can be used to make a durable membrane that is airtight and watertight. Rubber membranes are therefore used in artificial ponds and lakes for drinking water, but also as impermeable layers in waste storage. Impermeable sealing products have also been developed with the aim of conserving resources both in regards to the consumption of raw materials and transport needs. Twenty years ago, the use of three-layer roofing felt was common – its lifetime was 15 years. Later on, two-layer felt with a lifetime of 25 years was developed, and now there is a high-quality, bitumen-based roofing felt made of only one layer with an estimated lifetime of 35 years.

Trelleborg manufactures low-pressure tires for use on forestry and farming machinery. The low air pressure reduces the risk of soil compaction under the weight of the machinery – an advantageous feature from a soil-conservation viewpoint. Trelleborg Rubber Flooring's latest new product, granite-patterned C2 rubber flooring, has several advantages from an environmental perspective. The floor can be laid using water-based glue, it does not contain chlorine, it is durable

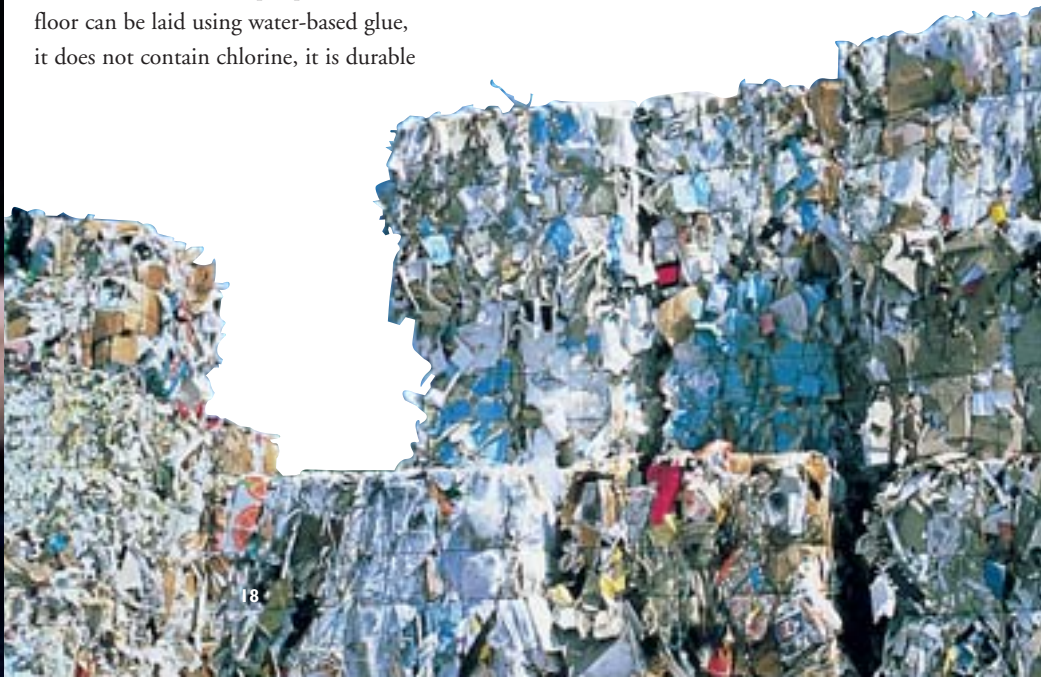
and it requires less frequent polishing than a linoleum floor, for instance.

### Life cycle analysis

Customers and environmental authorities alike are becoming increasingly interested in rubber's properties from a health and environmental viewpoint. For products in direct contact with foodstuffs, the issues have been relevant for quite some time, but in recent years, interest has focused on how various rubber chemicals are dispersed in the environment by the use of the products.

In Europe, interest has focused on tire use and on the substances dispersed in the environment as the tires roll along the roads. Trelleborg participates together with the BLIC in research projects that aim at charting the environmental effect of these rubber components (primarily zinc oxide), but also the environmental effect of tires throughout their life cycle, i.e. a life cycle analysis (LCA).

To improve the characteristics of the products in the environment and to reduce the risks in the working environment, the high aromatic plasticizers (HA oils), which are harmful to human health and the environment, have been replaced in the treads of tires made by Trelleborg Wheel Systems at the plant in Trelleborg. This is a strategically important decision, and we hope that it will be followed up by similar initiatives for other product groups.





## Examples of components in rubber products

Synthetic rubber  
Natural rubber  
Filler  
Steel  
Fabric  
Plasticizer  
Vulcanizer  
Accelerators  
Antidegradants

## Transport

### Producer's responsibility

In Sweden, tire production is covered by producer's responsibility, and therefore Trelleborg pays fees to support a system for the collection and recycling of used tires. Via this system, more than 90 percent of all used tires are taken care of.

Truck transport is the most common means of external and internal transportation of raw materials and finished products. A limited amount of goods is sent by train, boat or plane. Many measures have been implemented to reduce the environmental impact of transport, such

as the fact that Bröderna Edstrand's trucks use Citydiesel which emits fewer air pollutants. Ahlsell optimizes the conveyance of goods from its logistics center in Hallsberg through joint loads and other measures.

## Health and safety

Many working-environment aspects are important within the Group. The following aspects are of particular interest within the Industrial Sector:

- ◆ exposure to chemical products
- ◆ exposure to rubber fumes,
- ◆ noise,
- ◆ heavy lifting and repetitive tasks,
- ◆ injuries and accidents.

Marked improvements have occurred in many areas. As previously described, certain chemicals that are harmful to health have been replaced and the exposure to products and fumes has been reduced by means of technical ventilation measures and protection equipment. Machinery

and equipment have been improved, and accident risks have been reduced. At many factories, target oriented programs have been run during 1999 to reduce accidents. One example is the "10-point program" which was implemented at Industrial Hose in Trelleborg. In spite of comprehensive measures, the rubber industry – in comparison with other industries – still has a proportionately greater number of accidents and work-related illnesses and injuries.

### Accidents

In 1999, around 450 employees met with an accident that resulted in more than one day of absence. The total number of reported absences caused by accidents was





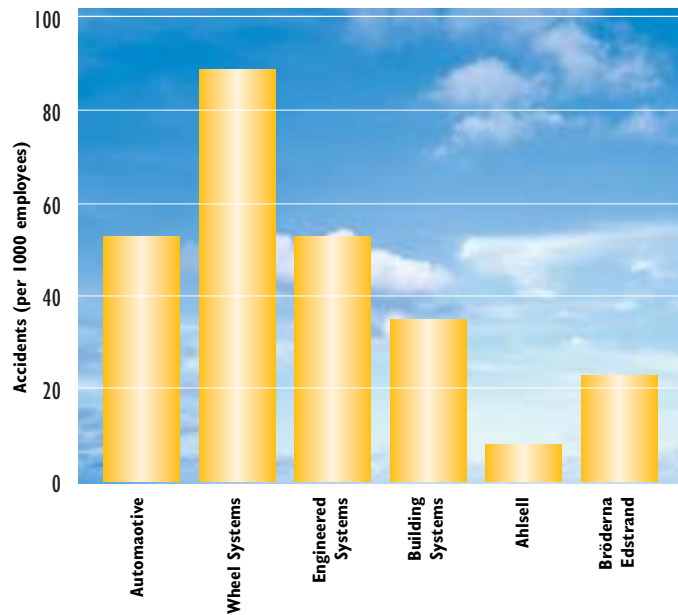


around 5,700 days. In 1999, the average accident frequency within the Group was 43 (number of accidents resulting in more than one day of absence per 1 000 employees). At several plants, the accident frequency is declining, and measures are under way to further improve the situation.

Many of the illnesses were caused by exposure to chemical products, e.g. allergies and other hypersensitive reactions. Furthermore, some cases of impaired hearing and other illnesses were reported.

The official reporting systems for occupational injuries and illnesses varies from country to country where Trelleborg op-

Number of accidents/1000 employees resulting in at least one day of absence



The accident frequency differs in the various business areas, the highest of which is at Wheel Systems. The countries within the Group afflicted most by accidents are Italy, Sri Lanka and Spain. In most cases, the accidents are caused by manual labor and result in cuts, burns and crushing injuries. These accidents are caused by factors like inadequate protection against moveable machine parts, inadequate safeguarding of equipment during maintenance and faulty operation of tools and equipment. Many accidents have been caused by internal transports, such as trucks.

#### Work-related illnesses and injuries

In 1999, around 155 work-related illnesses and injuries were reported within the Group. Most of these injuries were localized in the musculo-skeletal system and consisted of musculo-skeletal injuries.

erates. As a result, this effects the quality of the internal reporting. Ongoing efforts are attempting to improve this situation.

#### Training

Training programs in the areas of working environment and the environment have been carried out during the year at the Group's plants. The average number of training hours per employee is 4.7. At the plants which have implemented ISO 14001, a substantial portion of the training has been targeted to the organization and function of the environmental management system.

#### Working-environment research

In the area of working environment, Trelleborg participates in national and international projects which chart and attend to health risks in the rubber industry. One example is the EU's Brite-



## Economy and the environment

Euram project. Another is a research project which focuses on the working environment in the rubber industry. The project was recently initiated by the Institute of Occupational and Environmental Medicine at Lund University in Sweden.

Environmental and working-environment activities within the Group incur costs for administration, training, status reports, certifications, investments in purification equipment, decontamination of soil and groundwater, environmental and working-environment measurements and much more. For the plants, many of these costs are integrated in the projects, activities or expenses and are therefore not accounted for separately as specific environmental costs at present. The Group's plants

reported that the environmental costs in year 1999 amounted to around 3.5 million USD. Around half of this amount went to the operating expenses and the other half to various investments in environmental and working-environment improvements. At some of the plants, many of the environmental costs have been non-recurrent, e.g. at the plant in Trelleborg which during the year cleaned up soil and groundwater at a cost of some 0.4 million USD.

## When things did not go as planned

In 1999, a total of 32 spills, fires or other uncontrolled emissions to the surroundings were reported. All these events were limited in scope, with negligible effects on people or the environment. Most of the events were minor fires that could be extinguished on site by the processing personnel. In Izarra, Spain, a minor oil

spill in a nearby river occurred during the year. The discharge was quickly cleaned up.

During the financial year, 14 complaints submitted by neighbors and other persons near plants were registered. The complaints concerned noise, smells and dust.





# Environmental work within the Group's business areas

## Trelleborg Automotive

Trelleborg Automotive is a leading global supplier to the world's automotive industry. The focus is on customer needs, global presence, partnerships and efficiency. The business area is active in the development, production and sales of antivibration systems and sound-absorbing products for brakes. Operations are organized into three business units:

**Automotive Americas** and **Automotive Europe** (and **Automotive Asia** after the acquisition of BTR AVS), both of which are mainly active within the vibration area, and **Laminates** (and **Standard Products Asia** after the acquisition of BTR AVS), which focuses on the elimination of brake and structural noise in vehicles. The Laminates business unit also supplies special products, such as rubber floors, road-marking tape and Fillite filling material.

The business area has sales centers in Detroit, Frankfurt and Trelleborg and technical centers in South Haven, Trelleborg and Kalmar.

The business area management is located in South Haven (Michigan), US. Production plants are located in Sweden, Spain, Great Britain, Mexico, Norway, Germany, Brazil and the US. The business area has a total of some 2,140 employees and sales of 2,434 MSEK. At the turn of year 1999, an agreement was made to acquire BTR AVS, which has a turnover of around 4,200 MSEK.

### Important activities in the environmental sphere in 1998-1999:

- Environmental reviews have been conducted at the plants in Trelleborg I and II, Horda, Kalmar, Sjöbo, Örebro, Hemse (Sweden), Neumünster (Germany), Burgos (Spain), Benton Harbor (USA) and Toluca (Mexico).

- The plant in Neumünster (Germany) has been certified in accordance with ISO 14001.
- Soil examinations have been carried out at the plants in Dawson (USA) and Ohs (Sweden).
- Improvements in the ventilation system at the plant in Morganfield (USA) have resulted in energy savings. Energy conservation measures (lighting, ventilation) have also been implemented in Örebro and Runcorn (UK).
- Environmental declarations have been developed for rubber flooring in accordance with the requirements of ISO 14021.
- HA oils have been removed from the formula in Örebro and Hemse. Hazardous chemicals have been removed from the metal working process in Dawson.

- A rubber-waste recycling method has been developed at Burgos. Most of the rubber waste products, which previously were discarded, are now used in new products.



## Key figures

Energy consumption:	158 GWh (21% of Group total).
Water consumption:	399,300 m <sup>3</sup> (9% of Group total).
Emission of VOC:	89 metric tons (18% of Group total).
Recycled waste:	1,277 metric tons (13% of Group total).
Landfilled waste:	6,036 metric tons (13% of Group total).
Accident frequency:	53/1000 employees (Group average: 43/1000).
ISO 14001 certificates:	1 (8% of Group total).

## Environmental data 1998-1999 for Trelleborg Automotive

Plant	Number of employees		Energy (GWh)		Water (m <sup>3</sup> )		VOC (metric tons)		CO <sub>2</sub> (metric tons)		NO <sub>x</sub> (metric tons)		SO <sub>2</sub> (metric tons)	
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
Trelleborg I	132	94	19.7	15.3	13350	11240	0.5	0.6	2220	1780	1.1	0.8	-	0.07
Kalmar	64	65	3.7	5.5	826	540	3.5	8.0	598	928	1.2	1.1	1.0	1.4
Sjöbo	72	96	14.6	16.3	16700	8354	19	17.5	1120	1721	2.1	2.0	2.8	2.6
Horda	110	105	-	4.5	-	9027	-	0	-	0	-	0	-	0
Örebro	110	105	5.3	4.7	4750	4600	0	1.5	0	0	0	0	0	0
Hemse	92	90	5.3	4.8	2210	2360	0	0	130	91	0.3	0.1	1	0.1
Burgos	96	67	5.6	3.6	2611	1630	0.5	-	156	212	0.2	0.2	0.2	0.3
Neumünster	200	190	9.2	9.0	6300	6000	0	0	795	778	0.4	0.4	0.03	0.03
Runcorn	31	30	10.5	9.9	646	680	0	0	1761	1654	0.8	0.8	0.07	0.06
Sandusky	330	332	28.5	27.5	131102	153800	17.7	19.2	3686	3394	1.8	1.6	0.1	0.1
Dawson	185	190	11.8	11.2	43287	86300	3.9	8.3	1136	1027	0.5	0.5	0.04	0.04
Carmi I	58	56	11.4	11.0	6800	6100	0	0	860	760	0.4	0.4	0.03	0.03
Carmi II	133	142	7.9	8.7	29919	36800	18.8	16.5	1019	1008	0.5	0.5	0.04	0.04
Morganfield	143	183	11	16.1	41200	47669	12.3	17.3	971	1434	0.5	0.7	0.04	0.5
Benton Harbor	125	120	5.7	5.7	18100	18400	2	0.2	520	512	0.2	0.2	0.02	0.02
South Haven	90	119	3.5	3.8	4080	5800	0	0	295	252	0.1	0.1	0.01	0.01
Toluca	230	-	3	-	4089	-	3.8	-	0	-	-	-	-	-

Plant	Total waste (metric tons)		Hazardous waste (metric tons)		Landfilled waste (metric tons)		Accidents with absence/1000 employees		Uncontrolled emissions, spills, fires		Complaints	
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
Trelleborg I	1063	1075	1.5	0.4	843	833	11	58	0	0	0	0
Kalmar	348	455	8	4	120	174	31	31	1	0	0	0
Sjöbo	160	316	9	0	26	23	-	52	0	0	0	2
Horda	248	190	1	0	88	180	-	9	2	5	0	0
Örebro	77	84	4	1	55	60	73	17	0	1	0	0
Hemse	125	115	8	4	105	66	87	22	0	0	0	0
Burgos	350	337	9	0.2	341	322	73	388	0	0	0	0
Neumünster	487	466	48	27	-	63	-	45	0	0	0	0
Runcorn	406	464	0	0	406	464	0	0	0	0	2	2
Sandusky	720	532	5	5.9	273	354	54	36	0	0	0	0
Dawson	1080	1179	23	28	1048	1006	76	58	0	1	0	0
Carmi I	60	419	0.4	0.5	0	372	-	241	0	0	0	0
Carmi II	535	567	4	4.5	517	550	30	30	0	1	0	0
Morganfield	626	736	10	13	610	716	28	49	0	1	0	1
Benton Harbor	1014	946	25	22	989	847	240	8	0	0	0	0
South Haven	54	12	0	0	36	6	0	0	0	0	0	0
Toluca	155	-	4	-	141	-	87	-	0	-	0	-

Plant	Certificate	Environmental coordinator
Trelleborg I	ISO 9001 (Novibra, Calandered Materials), ISO 9001, QS 9000 (TAE Business Unit)	Bernt Nilsson, Leif Olsson
Kalmar	QS 9000	Sören Berneke
Sjöbo	ISO 9001, QS 9000	Bengt Andersson
Horda	QS 9000	Thommy Rosberg
Örebro	ISO 9000	Gunnar Söderberg
Hemse	ISO 9001	Sam Svännel
Burgos	ISO 9001, ISO 9009, QS 9000, UDA 6.1	Sergio de Dios
Neumünster	ISO 9009, QS 9000, UDA 6.1, ISO 14001	Klaus Böcker
Runcorn	ISO 9002	James Roberts
Sandusky	QS 9000	Debra Sopczynski
Dawson	QS 9000	Rod Millhof
Carmi I	QS 9002	Mike Henson
Carmi II	QS 9000	Dennis Jacobs
Morganfield	QS 9000	Doug Harre
Benton Harbor	ISO 9001, QS 9000	Mikael Lueken
South Haven	QS 9000	Barry Skuza
Toluca	QS 9000	Juan Martinez







# Trelleborg Wheel Systems

## Business description

Trelleborg Wheel Systems develops, manufactures and markets complete wheel systems for forest and farm machines, trucks and other material-handling equipment. The business area consists of four business units:

**Forest & Farm Tires and Agricultural Radial Tires** develop, manufacture and market a wide range of tires and wheels for forest and farm machines.

**Industrial Tires** develops, manufactures and markets solid and pneumatic industrial tire systems for forklift trucks and other material-handling equipment.

**Technical Materials** develops and manufactures polymer compounds, among other products.

The business area management is located in Trelleborg, Sweden. Production plants are located in Sweden, Denmark, England, Italy, The Netherlands, the US, Germany and Sri Lanka. The business area has a total of some 2,630 employees and sales of around 2,770 MSEK.

## Important activities in the environmental sphere in 1998-1999:

- Environmental reviews were carried out for the plants in Hadsten (Denmark), Sävsjö (Sweden), Trelleborg I (Sweden), Herentals (Belgium), Hartville (USA), Evergem (Belgium), Santander (Spain), Tivoli (Italy) and Hoogezand (The Netherlands).
- Agri (Trelleborg) has been certified in accordance with ISO 14001.
- Soil examinations were carried out at the plants in Trelleborg (Sweden), Herentals (Belgium), Evergem (Belgium) and Tivoli (Italy). Cleaning up measures are in progress or on the drawing board for these plants.
- HA oils have been removed from tires at the plant in Trelleborg. Measures for reducing occupational accidents have



been implemented in Trelleborg.

- The installation of a closed system for cooling water at Evergem has reduced water consumption by some 35%.
- At the plant in Tivoli, underground tanks have been removed, asbestos has been cleaned up and the electrical system has been upgraded in many places.

## Key figures

Energy consumption:	359 GWh (47% of Group total).
Water consumption:	3,052,800 m <sup>3</sup> (71% of Group total).
Emission of VOC:	137 metric tons (27% of Group total).
Recycled waste:	3,696 metric tons (39% of Group total).
Landfilled waste:	3,909 metric tons (22% of Group total).
Accident frequency:	89/1000 employees (Group average: 43/1000).
ISO 14001 certificates:	1 (8% of Group total).

## Environmental data 1998-1999 for Trelleborg Wheel Systems

Plant	Number of employees		Energy (GWh)		Water (m <sup>3</sup> )		VOC (metric tons)		CO <sub>2</sub> (metric tons)		NO <sub>x</sub> (metric tons)		SO <sub>2</sub> (metric tons)	
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
Trelleborg I	557	507	76.4	61.6	73100	63200	17.9	14.7	8740	7010	4.2	3.3	0.3	0.3
Sävsjö	37	38	2.2	2.5	838	1050	0	0	1066	124	0.1	0.1	0.2	0.2
Hadsten	108	110	3.7	3.8	2500	2500	0	0	452	237	0.2	1.1	0.1	1.01
Evergem	309	270	44.6	36.2	22398	14700	25	32	6113	5523	2.9	2.6	0.2	0.2
Herentals	35	26	1.5	2.3	424	800	0	0	204	373	0.1	0.2	0.01	0.01
Hoogezand	108	100	19.3	22.5	15000	13000	0	0	4018	3333	1.7	1.6	0.1	0.1
Tivoli	-	496	-	123	-	2450000	-	34	-	28739	-	28	-	39
Santander	42	40	1.9	1.6	864	1300	0.3	0.3	234	190	0.4	0.2	1.8	0.3
Hartville	240	248	66.3	68.5	450263	400300	56	49	9186	9339	4.3	4.4	0.3	0.4
Walgama*	-	252	-	14.6	-	58900	-	0	-	2652	-	5.0	-	20.4
Sapugaskanda	393	420	46.1	21.7	46588	46000	-	7.1	10868	4706	18	8.7	65	33.5

Plant	Total waste (metric tons)		Hazardous waste (metric tons)		Landfilled waste (metric tons)		Accidents with absence/1000 employees		Uncontrolled emissions, spills, fires		Complaints	
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
Trelleborg I	1860	2071	152	109	447	680	39	16	4	1	0	2
Sävsjö	-	20	-	9	-	11	0	0	1	0	0	0
Hadsten	1653	1377	0	0	0	30	148	36	0	0	0	0
Evergem	1038	787	38	33	645	445	52	51	0	3	2	1
Herentals	-	90	2	2	-	0	171	269	0	0	0	0
Hoogezand	689	527	12	15	347	251	28	30	0	0	3	1
Tivoli	-	1577	-	90	-	982	-	153	-	0	-	1
Santander	120	85	0	0	120	85	24	0	0	0	0	0
Hartville	1469	1814	10	9.8	1209	1275	58	93	0	0	0	2
Walgama*	-	50	-	0	-	50	-	143	-	0	-	0
Sapugaskan	-	125	-	0	100	100	198	123	-	0	0	0

Plant	Certificate	Environmental coordinator
Trelleborg I	ISO 14001, ISO 9001 (Agri), ISO 9002 (Material), ISO 9001 (F&F)	Anders Nilsson, Robert Pantzar, Per Nilsson
Sävsjö	ISO 9001	Jörgen Lagerkvist
Hadsten	-	Kim Larsen
Evergem	ISO 9001	Hendrik Raes
Herentals	-	Jef Ooms
Hoogezand	ISO9001	Elzo Doddema
Tivoli	-	Claudio Corboz
Santander	ISO 9002	Joaquin San Martin Oyarbide
Hartville	ISO 9001	Rey Cruz
Walgama*	-	Keerthi Wanasinghe
Sapugaskanda	ISO 9002	Keerthi Wanasinghe



\* In year 1998, Walgama and Sapugaskanda jointly reported on certain parameters.



# Trelleborg Engineered Systems

## Business description

Trelleborg Engineered Systems develops, manufactures and distributes industrial supply products and niche products in polymer materials, all with a high engineering content, to specialist customers in global markets. Trelleborg Engineered Systems consists of a large number of companies and six business units active primarily in the following three areas:

**Trelleborg Industrial Hose** develops, manufactures, markets and distributes industrial hose, couplings and industrial supply products. The area consists of the **Trelleborg Industrial Hose** and **Goodall** business units. **Trelleborg Engineered**

**Solutions** develops, manufactures and markets engineered polymer solutions for infrastructure projects such as bridges and tunnels, the offshore industry, the electronics, pulp and paper industries as well as protective products for hazardous work environments. This area comprises the following business units: **Trelleborg Infrastructure Products**, **Trelleborg Engineered Products** and **Trelleborg Protective Products**.



**Trelleborg Technical Laminates** develops, manufactures and markets various forms of rubber sheeting (laminated polymer products) for bulk and niche products. Major customers include the electronics, automotive and appliance industries.

The business area management is located in Trelleborg, Sweden. Production plants are located in Sweden, France, The Netherlands, Norway, Spain, Mexico, the US and Canada. The business area has a total of some 2,440 employees and sales of around 2,450 MSEK.

## Important activities in the environmental sphere in 1998-1999:

- Environmental reviews were carried out for the plants in Ystad (Sweden), Trelleborg I and II (Sweden), Izarra (Spain), Santiago Tianguisteno (Mexico), Ede, Ridderk (The Netherlands) and Collingwood (Canada).

- The plants in Hull (England), as well as Industrial Hose, Trelleborg II (Sweden), were certified according to ISO 14001.

- The plant in Izarra has gone over to using low-sulfur oils and thereby will reduce its SO<sub>2</sub> emissions to the atmosphere by around 60%. At Izarra, measures have also been implemented to improve waste handling and to increase the protection of soil and water. The amount of landfilled waste has been reduced by around 50% at Trelleborg II. The energy conservation program at Ede resulted in more than a 25% reduction in energy consumption.

- Risk analyses concerning the working environment and the replacement of chemicals that are injurious to human health and the environment have been carried out in Ridderkerk, Hull and Trelleborg II.

- Soil investigations and clean-up were carried out at Clemon-Ferrand (France).

## Key figures

Energy consumption:	147.7 GWh (19% of Group total).
Water consumption:	536,000 m <sup>3</sup> (12% of Group total).
Emission of VOC:	268 metric tons (53% of Group total).
Recycled waste:	266 metric tons (3% of Group total).
Landfilled waste:	4,143 metric tons (23% of Group total).
Accident frequency:	53/1000 employees (Group average: 43/1000).
ISO 14001 certificates:	3 (25% of Group total).

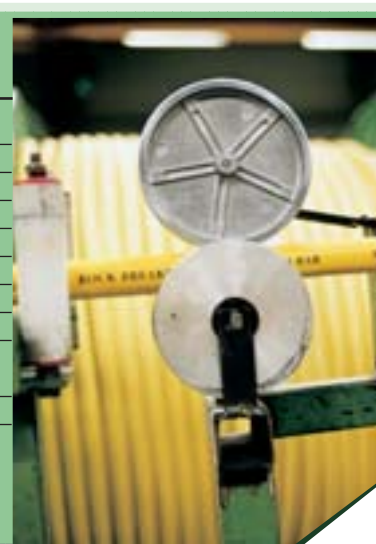


## Environmental data 1998-1999 for Trelleborg Engineered Systems

Plant	Number of employees		Energy (GWh)		Water (m <sup>3</sup> )		VOC (metric tons)		CO <sub>2</sub> (metric tons)		NO <sub>x</sub> (metric tons)		SO <sub>2</sub> (metric tons)	
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
Trelleborg I*	-	60	1.2	0.9	1760	1500	16.2	14.6	105	80	0.05	0.04	0.004	0.003
Trelleborg II	248	236	28.2	26.0	42551	34000	5.3	3.8	3800	3500	1.0	1.7	0.1	0.1
Ystad	110	104	3.3	3.1	2500	2500	5.5	4.7	442	416	0.5	0.5	0.7	0.6
Mjödalen	-	265	-	19.4	-	73500	-	15.1	-	1057	-	1.0	-	0.5
Ridderkerk	108	105	8.7	8.7	7305	6460	6.2	6.2	1525	1442	0.7	0.7	0.05	0.05
Ede	65	65	4.4	3.9	6498	6580	2.0	1.8	781	674	0.4	0.3	0.03	0.02
Hull	-	30	-	1.2	-	20236	-	-	-	1	-	0	-	0
Izarra	261	282	19.2	22.1	15420	12400	9.1	8.7	3076	3328	5.8	6.4	29.3	28.5
Clermont-Ferrand	611	579	59.7	51.8	307271	293300	226	213	7995	7720	20.6	14.9	24.6	59.4
Collingwood	-	45	-	4.3	-	85700	-	0	-	581	-	2.8	-	0.02
Santiago														
Tianguisteno	115	134	6.7	6.3	-	-	3.0	-	1176	1011	2.3	1.2	2.0	1.6

Plant	Total waste (metric tons)		Hazardous waste (metric tons)		Landfilled waste (metric tons)		Accidents with absence/1000 employees		Uncontrolled emissions, spills, fires		Complaints	
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
Trelleborg I*	20	35	10	10	10	12	33	0	0	0	0	0
Trelleborg II	1029	896	12	6	524	250	28	16	0	7	2	0
Ystad	57	74	0	2.5	57	60	54	0	0	0	0	0
Mjödalen	-	861	-	27	-	598	-	41	-	0	-	0
Ridderkerk	132	145	8.5	4.9	0	0	55	28	0	0	1	0
Ede	116	97	0	0	98	77	61	31	0	0	1	1
Hull	-	55	-	0	-	55	-	0	-	0	-	0
Izarra	2318	1463	10.4	10	2300	1435	123	131	1	2	0	0
Clermont-Ferrand	1742	1622	51	42	1635	1553	105	45	0	7	0	0
Collingwood	-	104	-	0.5	-	103	-	44	-	0	-	0
Santiago												
Tianguisteno	322	-	31	-	275	-	-	0	0	0	0	0

Plant	Certificate	Environmental coordinator
Trelleborg I*	ISO 9001	Håkan Sjöholm
Trelleborg II	ISO 14001 (Industrial Hose), ISO 9001	Erland Jakobsson
Ystad	ISO 9001	Stefan Andersson
Mjödalen	ISO 14001, ISO 9001, QS 9000	Egil Solberg
Ridderkerk	ISO 9001	Nico van Gijn
Ede	-	Rob Nikkels
Hull	ISO 14001, ISO 9002	Roy Booth
Izarra	ISO 9002 (TIBASA)	Jose Luis Losa
Clermont-Ferrand	ISO 9001	Michel Ochsenbein
Collingwood	ISO 9002	Paul Ziegler
Santiago		
Tianguisteno	ISO 9002	Leif Lindholm



\* Protective Products + office



# Trelleborg Building Systems

## Business description

Trelleborg Building Systems is a leading supplier of rubber and bitumen-based building products for sealing and waterproofing applications within industry and the Do-It-Yourself (DIY) market. Trelleborg Building Systems operates through five business units:

**Industrial Profiles and Consumer Profiles.** Both business units develop and manufacture sealing profiles for the building industry and other specialist market segments as well as self-adhesive sealing profiles for the DIY market.

**Rubber Membranes and Roofing** manufactures and markets rubber membranes for roofs, landfills and water storage facilities. Bitumen-based sealing systems for roofs, bridges and other applications are manufactured and marketed under the Mataki and Trebolit brand names.

**Materials.** The business unit develops and manufactures granules and compounds for the cable and retreading industries.

The business area management is located in Trelleborg, Sweden. Production plants are located in Sweden, England, Germany, Finland and Belgium. The business area has a total of some 910 employees and sales of around 1,370 MSEK.

## Important activities in the environmental sphere in 1998-1999:

- Environmental reviews were carried out for the plants in Värnamo I and II, Bor, Rydaholm, Höganäs (Sweden) and Mosbach (Germany).

- The plants in Värnamo, Bor and Rydaholm renewed their permits in accordance with environmental legislation. Risk analyses concerning the external environment have been carried out at these plants.

- The transition from fuel heating oil to gas at Värnamo II reduces the emissions to the atmosphere.

- Energy consumption at Rydaholm has been reduced by around 20 percent.



## Key figures

Energy consumption:	60.6 GWh (8% of Group total).
Water consumption:	274,500 m <sup>3</sup> (6% of Group total).
Emission of VOC:	5 metric tons (1% of Group total).
Recycled waste:	567 metric tons (6% of Group total).
Landfilled waste:	3,628 metric tons (20% of Group total).
Accident frequency:	35/1000 employees (Group average: 43/1000).
ISO 14001 certificates:	0 (0% of Group total).

## Environmental data 1998-1999 för Trelleborg Building Systems

Plant	Number of employees		Energy (GWh)		Water (m <sup>3</sup> )		VOC (metric tons)		CO <sub>2</sub> (metric tons)		NO <sub>x</sub> (metric tons)		SO <sub>2</sub> (metric tons)	
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
Värnamo I	183	142	11.5	10.7	40755	28000	0	0	65	23	0.1	0.04	0.07	0.03
Värnamo II	154	161	16.5	16.1	86680	122000	0	0	1020	825	1.9	0.9	0.7	0.4
Bor	84	81	9.7	9.1	80300	78370	5	2.5	614	571	0.7	0.6	0.9	0.9
Rydaholm	99	104	7.7	6.7	2553	2130	0	0	0	0	0	0	0	0
Höganäs	82	70	11.3	10.6	4335	3580	6.5	2.5	838	880	4.0	4.2	0.03	0.03
Mosbach	-	73	-	7.4	-	40450	-	0	-	651	-	0.3	-	0.02

Plant	Total waste (metric tons)		Hazardous waste (metric tons)		Landfilled waste (metric tons)		Accidents with absence/1000 employees		Uncontrolled emissions, spills, fires		Complaints	
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
Värnamo I	50	44	44	39	5	4	60	42	0	0	0	0
Värnamo II	397	615	19	36	-	319	19	62	1	0	1	0
Bor	1547	2094	17	22	1280	1600	24	25	1	1	2	0
Rydaholm	296	327	23	63	43	58	40	10	1	1	0	0
Höganäs	1485	1405	0	5	1485	1400	12	14	0	0	0	1
Mosbach	-	368	-	0	-	247	-	14	1	0	-	0

Plant	Certificate	Environmental coordinator
Värnamo I	ISO 9001	Per Tevebring
Värnamo II	ISO 9001	Per-Olof Martinsson, Magnus Bergstedt
Bor	ISO 9001	Arne Ekegren
Rydaholm	ISO 9001	Kenny Dahl
Höganäs	ISO 9001	Lars Dahlbom
Mosbach	-	Ralf Hahn







# Ahlsell

In its capacity as wholesaler, Ahlsell offers a complete range of heating and plumbing, refrigeration and electrical products and services for installation contractors, industries, municipalities and retailers. Distribution covers all of Sweden via eighty-some DIY markets and a logistics center in Hallsberg. More than 55,000 different articles are found in the central warehouse. In addition to Sweden, Ahlsell is currently located in Denmark, Norway, Finland, Poland, Russia and the Baltic States.

The business area has a total of some 1,765 employees and sales of around 5,340 MSEK.

### Important activities in the environmental sphere in 1998-1999:

- Environmental reviews were carried out for the Logistics Center in Hallsberg (Sweden) and for Ahlsell Kyl, Stockholm (Sweden).
- The plant in Hallsberg has been certified in accordance with ISO 14001.



- Ahlsell Kyl is working on introducing cooling systems that are less hazardous to the environment.
- A project that shall increase the reuse of packaging, reduce the impact of transport on the environment and reduce the number of chemical products occurs within the framework of ISO 14001.

## Key figures

Energy consumption:	4.5 GWh (0.6% of Group total).
Water consumption:	3,200 m <sup>3</sup> (0.07% of Group total).
Emission of VOC:	0 metric tons (0% of Group total).
Recycled waste:	160 metric tons (2% of Group total).
Landfilled waste:	0 metric tons (0% of Group total).
Accident frequency:	8/1000 employees (Group average: 43/1000).
ISO 14001 certificates:	1 (8% of Group total).

Plant	Number of employees		Energy (GWh)		VOC (metric tons)		CO <sub>2</sub> (metric tons)		Landfilled waste (metric tons)		Accidents with absence/1000 employees		Spills, fires, complaints	
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
Hallsberg	320	340	5	4.4	0	0	0	0	0	0	12	9	0	0
Ahlsell Kyl	-	35	-	0.06	-	0	-	0	-	0	-	0	-	0

Environmental coordinator, Hallsberg: Jonas Pettersson      Environmental coordinator, Ahlsell Kyl: Leif Davidsson



## Bröderna Edstrand

Bröderna Edstrand is a wholesaler that purchases, stocks and distributes commercial, reinforced and specialized steels, industrial pipes, stainless steel and aluminum. The largest product by far is commercial steel, followed by stainless steel and aluminum. Materials are delivered to an increasing extent as refined, customer-tailored products. Coating, heat churning, blasting and rustproof painting are examples of product improvements carried out by Bröderna Edstrand.

The company is dispersed over five regions of Sweden with warehouses in Malmö, Jönköping, Gothenburg, Stockholm/Norrköping and Sundsvall, as well as the reinforcement plant in Jularbo. The head office with joint functions is located in Malmö. The business area has a total of some 500 employees and sales of around 2,300 MSEK.

### Important activities in the environmental sphere in 1998-1999:

- Environmental reviews were carried out for the plants in Malmö, Jönköping, Norrköping, Gothenburg, Sundsvall and Jularbo.

- All plants have been certified in accordance with ISO 14001.
- The entire staff has been trained in environmental issues.
- Improved handling procedures for chemicals and waste have been implemented at the plants.
- Natural gas has replaced oil in Malmö.
- Soil-contamination prevention measures have been implemented in Jönköping, Norrköping and Sundsvall.

### Key figures

Energy consumption:	16.5 GWh (2% of Group total).
Water consumption:	14,500 m <sup>3</sup> (0.3% of Group total).
Emission of VOC:	4.2 metric tons (1% of Group total).
Recycled waste:	3,584 metric tons (37% of Group total).
Landfilled waste:	304 metric tons (2% of Group total).
Accident frequency:	23/1000 employees (Group average: 43/1000).
ISO 14001 certificates:	1 which includes 6 plants (50% of Group total).

Plant	Number of employees		Energy (GWh)		VOC (metric tons)		CO <sub>2</sub> (metric tons)		Landfilled waste (metric tons)		Accidents with absence/1000 employees		Spills, fires, complaints	
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
Malmö	155	145	6.0	4.1	1.5	1.5	824	288	31	66	84	26	0	0
Jönköping	36	42	1.5	1.4	0	0	210	148	92	39	83	46	0	0
Norrköping	142	143	8.6	6.3	1.3	1.3	848	370	154	95	49	34	0	0
Gothenburg	95	93	2.4	2.2	0.4	1	0	0	65	59	84	0	0	0
Jularbo	29	23	1.1	1.0	0	0	47	52	5	5	34	43	0	1
Sundsvall	66	69	3.8	1.5	1	0.4	600	0	48	40	45	15	0	0

Contact person for environmental issues: Henrik Fries



Other environme



### Environmental objectives

In view of the Group's differing activities, environmental objectives for the Group as a whole are not specified, with the exception of the goal that all plants shall be certified in accordance with ISO 14001. Quantifiable environmental goals are found within the framework of the environmental management system at the individual plants. Most of the plants account for their environmental objectives which concern for example:

- improved conservation of energy and other natural resources,
- reduced volumes of waste,
- fewer occupational accidents and safer workplaces,
- reduced emissions to the atmosphere

### Other activities

In 1999, Trelleborg has participated in a number of environmental activities within various areas. Here are some examples of these activities:

- Several of the plants within the Group have cooperated with universities and colleges in Sweden and other countries. This cooperation has included activities like research projects, examination work,

study visits and education. The Group has also contributed to the environmental commitment of young children in the form of teaching materials.

- Trelleborg's environmental work has been presented at a number of national and international seminars and conferences. Among other things, Trelleborg has informed on its environmental management system and environmental auditing techniques.

- For many years, Trelleborg has been affiliated with the chemical industry's international environment program, Responsible Care, and one of the features of this program is that during the year environmental data is submitted to the chemical industry's joint environmental report for Sweden.

- Through the commitment of sector associations in various countries, Trelleborg cooperates with other industries on various environmental activities. Examples of these associations and networks in which Trelleborg is represented are SGI's environmental committee, the

committee for Health and Environment within BLIC, the Swedish Federation of Chemical Industries and the Association of Swedish Environmental Auditors.

Several of the sector associations run extensive research and development projects within the environmental sphere and function as reference groups for new legislation and other developments within the environmental sphere. Examples of projects of great interest to the rubber industry are on-going international cooperation regarding life cycle analyses within BLIC and working environment and environmental issues within the framework of the Brite-Euram Project (EU).

- Together with environmental authorities, consultants and universities, Trelleborg participates in various environmental programs in several countries. This includes initiatives like the introduction of ISO 14001, waste reduction and energy conservation.

## Environmental activities







# Glossary

**Accelerators** Speed up the chemical reactions of the vulcanization process.

**Antidegradant** Added to prevent the aging of the rubber.

**Antioxidant** Prevents rubber from deteriorating from the effects of oxidation.

**BLIC** Association of European rubber manufacturers.

**Butyl rubber (IIR)** Like EPDM, butyl rubber is highly resistant to the effects of weather. In addition it has a high molecular density which means that gas leaks out very slowly. As a result, butyl rubber is used in products in which air must be retained, like tire inner tubes, but is also used in chemical protection suits. Butyl rubber is also very resistant to atmospheric ozone and is highly heat resistant.

## **Environmental management system**

The part of the overall management system that includes the organizational structure, planning, activities, distribution of responsibility, practices, procedures and resources for developing, implementing, performing, reviewing and maintaining the organization's environmental policy. ISO 14001 is used as the environmental management standard within the Trelleborg Group.

**Emission** A discharge of foreign substances to the surrounding environment. In its broadest sense, emissions can be water-borne, airborne, liquid or particulate.

## **Ethene propene rubber (EPDM)**

A synthetic rubber that is highly resistant to the effects of weather, ozone, chemicals and other effects. Therefore used for roofing materials, radiator hoses, vehicle sealants, window sealing strips, tire sidewalls and electrical insulation.

**ETU** Ethylene thiourea substances, accelerators harmful to human health that are used to speed up the vulcanization process.

**Hazardous waste** Waste requiring special disposal techniques. Different countries have different definitions and regulations, and national standards are frequently changed making it more difficult to provide a standardized account of hazardous waste.

**GWh** Gigawatt hour, 1 billion watt hours.

**HA oil** Plasticizer containing a high concentration of carcinogenic polyaromatic hydrocarbons (PAH).

**ISO (International Organization for Standardization)** An international organization which has produced an extensive range of

standards that include the ISO 9000 and ISO 14000 series. ISO is commonly accepted around the world for quality and environment work. More than eighty countries are members of the ISO.

**ISO 9000** A series of international standards for quality assurance. Adopted in 1987.

**ISO 14000** A series of international standards for environmental management systems (ISO 14001), life cycle analyses, environmental auditing, environmental labeling, environmental performance evaluation and environmental terms and definitions. Adopted in 1996.

**Carbon dioxide (CO<sub>2</sub>)** CO<sub>2</sub> is formed in all carbon combustion processes and is also released in the use of petroleum products. The emission of excessive amounts of carbon dioxide in the atmosphere promotes global warming.

**LCA (Life Cycle Assessment)** A management tool for assessing and quantifying the overall environmental impact of products and activities over their entire lifetime. This occurs by analyzing the entire life cycle of a particular material, process, product, technology, service or activity.

**Environmental aspect** The parts of an organization's activities, products or services which interact with the environment. An overview of the Trelleborg Group's important environmental aspects is accounted for in the present report.

**MOCA** Carcinogenic accelerators. For the most part phased out within the Trelleborg Group, but still used in certain polyurethane productions.

**Natural rubber (NR)** Natural rubber is very elastic and has a low generation of heat. This makes rubber practicable for engine attachments and in large tires where other kinds of rubber are prone to overheating and expansion. In addition, natural rubber is a very strong kind of rubber.

## **Neoprene or polychloroprene rubber (CR)**

Resists the effects of oil and is therefore used for purposes like windscreen wipers and sealing strips for car windows. Poor burning properties which is useful in cables. Neoprene is also used for compensators, rollers, hoses and rubber membranes.

**Nitrile rubber (NBR)** Very resilient to mineral oils and gasoline. Nitrile rubber is poorer at withstanding cold however and less elastic than natural rubber. Used for car parts, oil and gasoline hoses, conveyor belts, oil gaskets, printing rollers and specialty products.

**Nitroso amines** Substances that are carcinogenic to animals and humans. Created in certain vulcanization processes.

**NO<sub>x</sub> (nitrogen oxides)** Gaseous oxides created in the combustion process through the oxidation of nitrogen. Harmful to human health and the environment. Causes acid rain and eutrophication.

**PAH** Polyaromatic hydrocarbons. Some are carcinogenic. PAH are released to the atmosphere from exhaust fumes, small-scale firewood heating and in connection with vulcanization processes in the rubber industry.

**Polyurethane** Polyurethane consists of polymers linked by urethane bridging-atoms. Polyurethane can be used for coatings, glues, elastomers, fibers and foam material. In liquid form, it can be used in extruders or cast in molds. Polyurethane can be made in an extremely hard material and can be substituted for metal. At Trelleborg, polyurethane is used for coating rollers and for solid tires. Various diisocyanates like TDI or MDI are used in the manufacturing process.

**SGI** Swedish Rubber Industry Association (Svenska gummiindustriföreningen). Trelleborg AB participates in SIG's committee for environmental issues, among other activities.

**SO<sub>2</sub> (sulfur dioxide)** Sulfur dioxide is formed when petroleum products are burned. SO<sub>2</sub> contributes to the acidification of lakes, streams and soil and causes coniferous trees to shed their needles. Large concentrations in the environment are harmful to human health.

## **Styrene-butadiene rubber (SBR)**

SBR is very elastic and has a low generation of heat. This makes the rubber practicable for engine attachments and in large tires where other rubber varieties are prone to overheating and expansion.

## **VOC (Volatile Organic Compounds)**

VOCs accounted for in this report consist of unchlorinated and chlorinated solvents. VOC emissions contribute to local atmospheric environmental effects, including the formation of ground-level ozone. Many VOCs are definitely hazardous to human health.



# How to contact us

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The environmental reports and other information  
about the Trelleborg Group are also available via the Internet.  
[www.trelleborg.com](http://www.trelleborg.com)



**TRELLEBORG**