

Data and Trends

**Environmental protection
and Safety**

2005



EMS-GRIVORY Performance Polymers
EMS-GRIVORY Extrusion Polymers
EMS-GRILTECH
EMS-PRIMID
EMS-PATVAG
EMS-SERVICES

Data and Trends 2005

Protection of the environment and health and safety of our employees are factors given top priority by the companies of the EMS Group during manufacturing and selling activities for their high-quality products in the fields of performance polymers, fine chemicals and engineering. As a supplement to our brochure, "Environmental protection and Safety", we also provide information about current trends and measures and take this opportunity to comment on changes and special events. The facts and figures given refer to the business units EMS-GRIVORY Performance Polymers, EMS-GRIVORY Extrusion Polymers EMS-GRILTECH, EMS-PATVAG, EMS-PRIMID and EMS-SERVICES. These companies employ a total of 1200 workers at the work site in Domat/Ems.

Each graph shows the specific quantities which are used or produced during the manufacture of 1 ton of sales product. These figures are of course, independent of quantities manufactured annually, although changes in product mix or the introduction of new products may have an influence on the comparability of these figures with those of the previous year.

Investments

Environmental and safety investments

Focus for investments towards protection of the environment and safety in 2005 was placed on measures to further improve safety in the workplace. All business units made considerable investments to protect employees from injury caused by falls. Safer procedures for loading and emptying of tank wagons in particular were subjected to careful scrutiny. Ventilation and filter systems were further improved to prevent health risks from dust or dangerous fumes. A total of more than one million Swiss Francs were invested in safety measures including those to increase efficient use of energy.

By making changes in process control, EMS-GRIVORY Extrusion Polymers was able to reduce energy consumption while at the same time, increasing production.

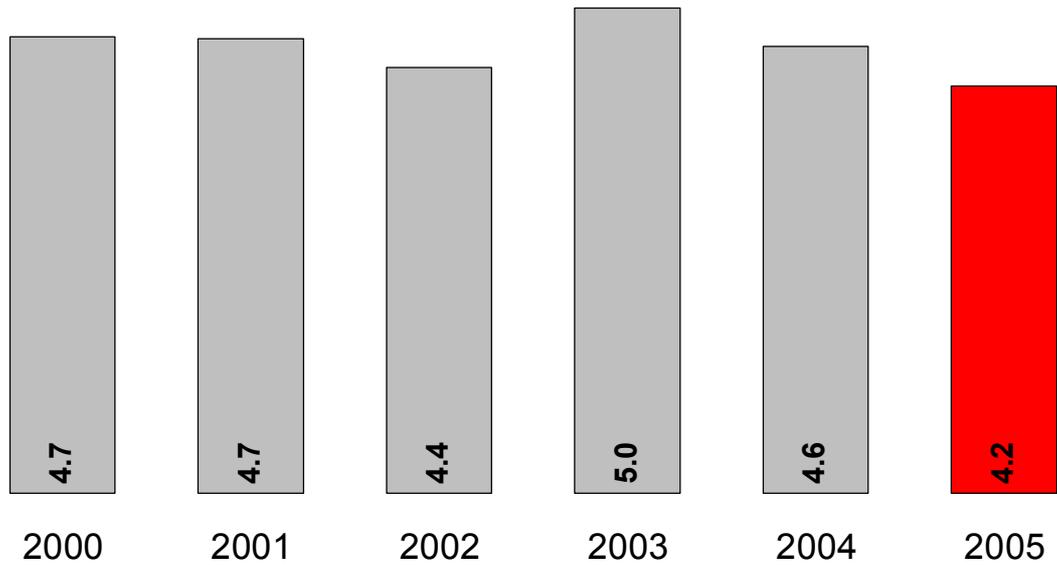
EMS-GRILTECH undertook different measures to improve work place comfort for operators in office and production locations.

Through automation of their production plant control, EMS-PRIMID was able to achieve significant improvements in both product quality and safety of personnel. The automated plants also produce clearly reduced quantities of waste.

EMS-PATVAG carried out investments to increase safety during handling of explosive substances.

EMS-SERVICES, responsible among other things for the energy supply for the whole work site in Domat/Ems, invested in recycling of waste heat for heating purposes.

Share of environmental and safety investments as percentage of total investments

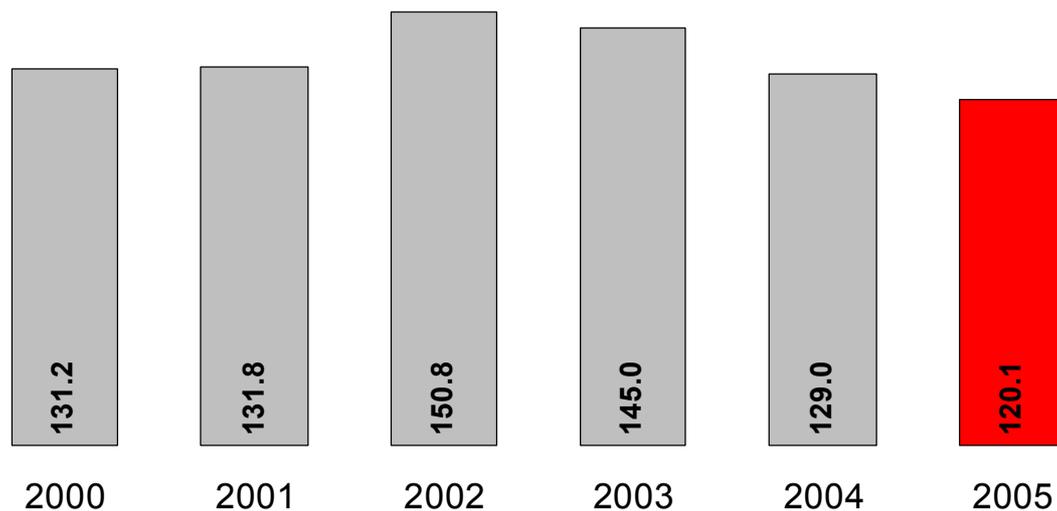


Operating expenses

Permanent efforts

Continued protection of the environment and high safety levels are only possible with on-going efforts and costs for this are mirrored in the operating expenses. Decreased expenditure does not indicate that fewer measures were taken, but is an indication of more efficient use of available resources. Nearly half of all expenditure was used to process waste water in the company-owned plant. With regard to safety, expenditure to improve safety of operating plants and prevention of health risks for employees were given priority.

E+S outlay CHF/t product



Energy

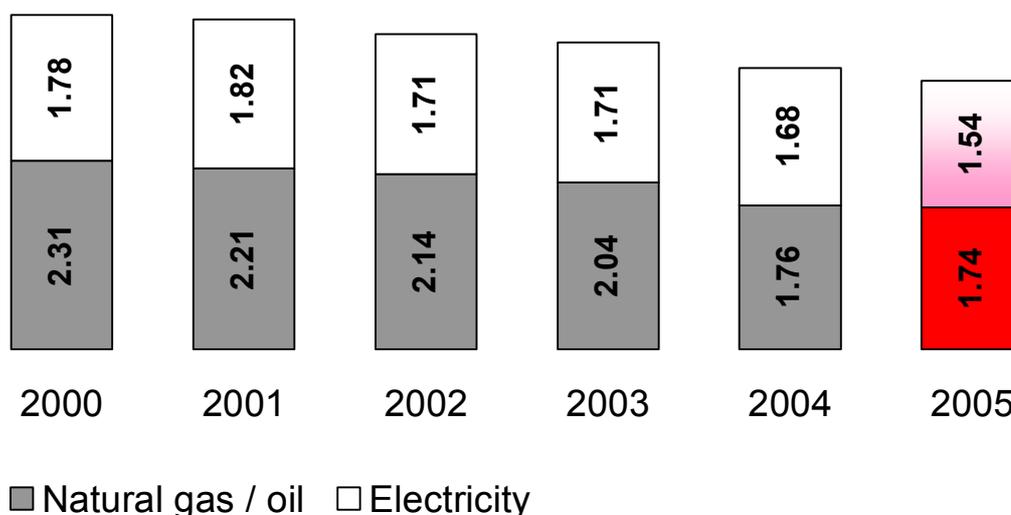
Investment in energy measures pays off

20% less energy consumed for each ton of product manufactured is the positive result of our efforts over the last five years. The advantageous effects of high investments made over the last years towards efficient use of energy are becoming clear.

Emission of CO₂ from heat generation using natural gas was reduced by 7% compared to last year.

We can look towards the future with high expectations regarding CO₂ emissions. One of the largest timber power plants in Switzerland began production of steam on the work site in Domat/Ems at the end of last year. From 2006, 30% of all process steam required by the works will be generated by this biomass power plant. An increase to 60% of the heating requirements is planned from 2008. Timber from the forest of the Grisons area and wood from building demolition work is used as fuel for this power plant.

MWh/t product

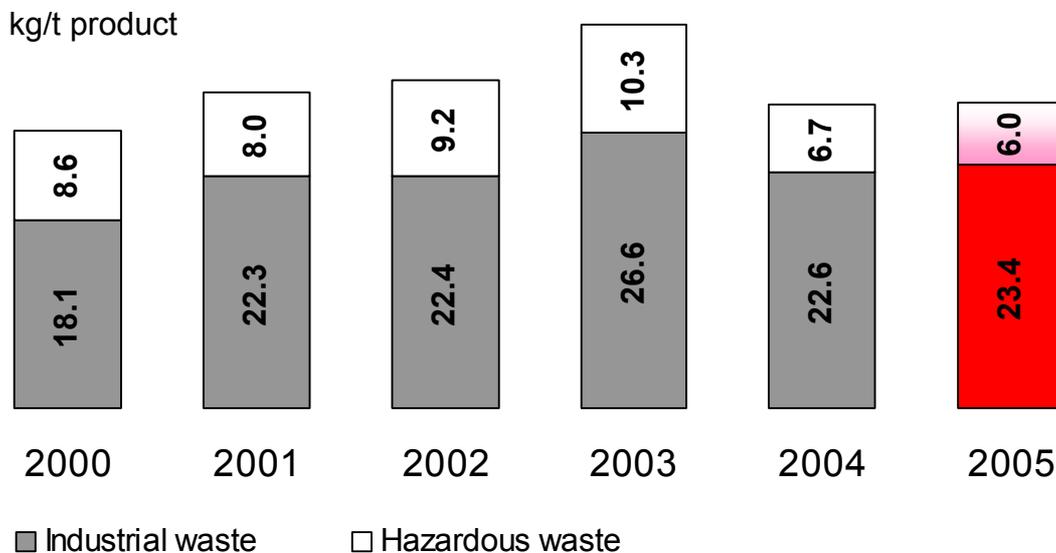


Manufacturing waste

Continued decreasing trend for hazardous waste

A striking improvement was achieved with a further 10% reduction in hazardous waste. The impact of numerous operating measures, both technical and organisational, is becoming clear. Compared to last year, over 30% less hazardous waste was disposed of. A very large part of waste produced during processing of our polymer construction materials, is used as an alternative fuel source in the cement industry where, due its very high heating capacity, it are used to replace coal.

Our on-going efforts to separate waste and recycle materials are proving successful. One third of the separated waste can be recycled and utilised as a secondary resource by external, specialised companies.



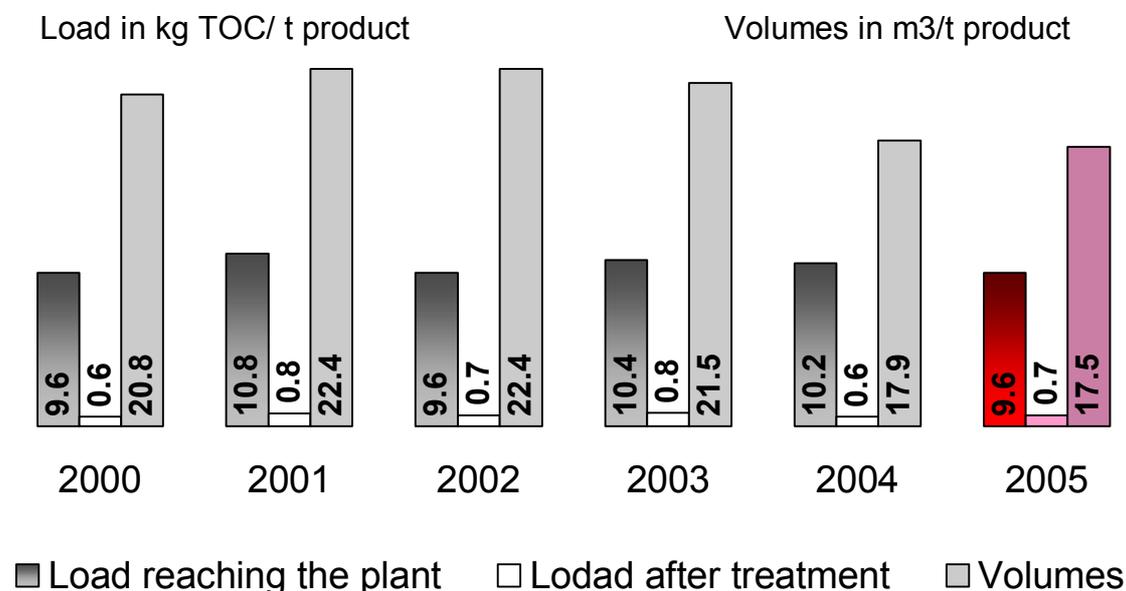
Waste water

Compliance with more stringent legislation

Compared to the previous year, the quantity of waste water reaching our company-owned water treatment plant showed a 6% decrease. The more stringent legal requirements were complied with.

In addition to processing the industrial waste water, the company water treatment plant also separately treats waste water from the local towns of Rhäzüns, Bonaduz and Tamins. The dry sludge is dewatered and transported to other treatment plants for further processing. The gas generated during these processes is made use of directly in the water treatment plants and the dry sludge is used by a local cement work as a valuable alternative fuel source.

The graph shows the development of waste water quantities and wastewater load before treatment at our treatment plant. As the water load is made up mainly of organic material, this is shown as TOC (total organic carbon).



Air emissions

Reduced dust emissions

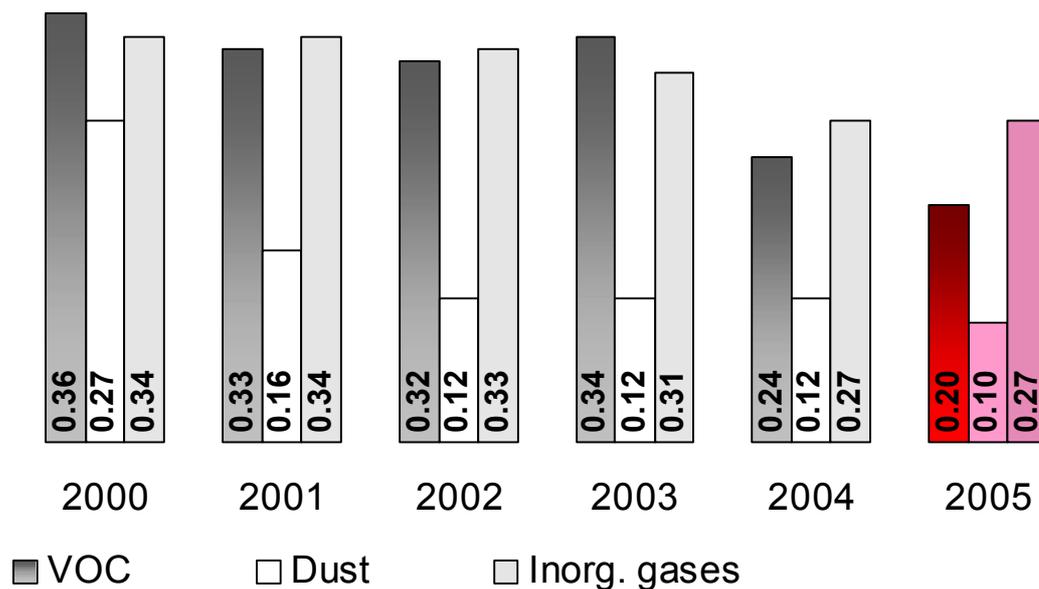
An additional high-performance scrubber for exhaust gases was installed in the production plant for high-temperature resistant engineering plastics. This allowed us to reduce the dust emissions in this plant by a striking 20%.

We have also introduced a system of burning exhaust air containing solvent fumes to heat the boiler used to produce steam. This energetically good solution also reduces the emission of volatile hydrocarbons by 20%. Overall, the work site produces emissions of just below 0.2 kg VOC per ton of manufactured product today. This is 70% less as 10 years ago. Further improvements are limited by technical processes.

Regarding the graph:

- The emission factor indicates the quantity of pollutant of a particular class which escapes into the air for each ton of product manufactured.
- VOC are volatile organic compounds such as solvents or secondary products from the manufacturing processes of our engineering plastics.
- Dust emissions are mainly fine particles which are not collected in the exhaust air cleaners.
- Inorganic gases, mainly nitrogen oxide, are generated during combustion of natural gas for heating purposes.

Emission factor in kg/t product



Health protection

Accident prevention with top priority

The comprehensive programme “Integrated Safety” continues to be a great success. The safety-awareness of all employees and consistent elimination of apparent weak points is having an effect. Compared to the previous 12 months the number of work accidents did not show such a marked decline as immediately after the introduction of this programme in 2003, but the down-time has been reduced by 33%. This means that the effects of accidents are clearly less serious than last year.

If the number of accidents occurring outside working hours are compared to those at the workplace, it can be determined that the accident risk during free time is 2.5 times greater than at work. Statistically, a work accident resulting in a work absence occurs only once every 30 years for EMS employees. This pleasing development has only been made possible as safety-oriented behaviour is given priority, even with heavier workloads. We intend maintaining this positive trend in future and expect that the safety-awareness of our employees will also improve during their leisure activities.

Work accidents per 1000 employees

