

Data and Trends

Environmental protection and safety

2009



EMS-GRIVORY
EMS-GRILTECH
EMS-SERVICES

Data and Trends 2009

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 distribution of 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. These facts and figures refer to the business units EMS-GRIVORY, EMS-GRILTECH and EMS-SERVICES. These companies employ a total of around 1000 workers at the production 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 independent of deviations in the quantities manufactured annually.

As a result of the global economic downswing experienced towards the end of 2008, sales quantities manufactured in 2009 were lower than in the previous year. Lower utilisation of plant capacity resulted in lower efficiency and, for example, more energy being consumed for each kilogram of sales product manufactured than in the previous year. For some key figures this effect compensated progress otherwise achieved.

Investments

Investments in energy efficiency, cleaning of exhaust air and work hygiene

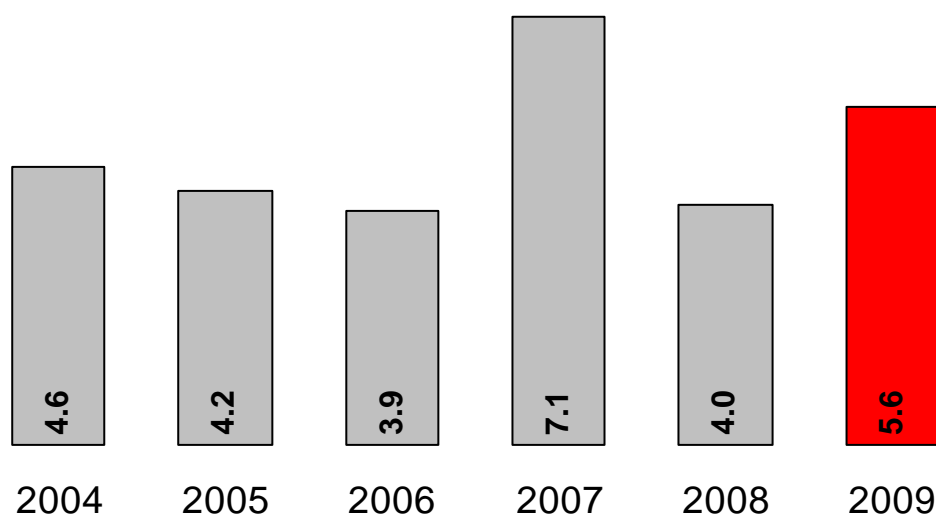
Particular attention was paid to the improvement of energy efficiency, i.e. less energy consumption for the same performance. With this objective, a large number of heating systems and hot air ducts were given new insulation.

In addition, numerous investments were made in all business units to improve utilisation of energy and reduced consumption of cooling water, nitrogen and compressed air.

Exhaust air containing solvents is subject to afterburning in an incinerator of the Axpo Tegra AG biomass power station. In order to ensure this afterburning even during renovation work, an additional feed line to a second oven at the power station was installed.

Comprehensive measures were implemented in one plant to improve the ambient air situation and work hygiene. These measures included encapsulation of machinery, improvement of ventilation air etc.

Share of E+S investments as a % of total investments

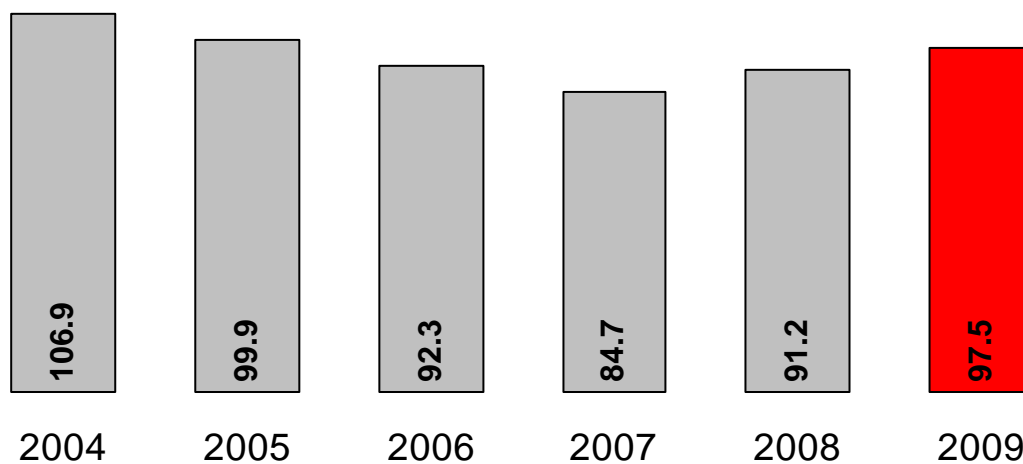


Operating expenses

Costs comparable to previous years

Outlay towards protection of the environment is mainly made up of operating costs for waste water and exhaust air cleaning plants and waste disposal management. Operating costs in the area of safety result mainly from measures to ensure protection of health, fire prevention, security and working safety (prevention of accidents). In 2009 these costs were comparable to those of previous years.

E+S outlay CHF/t product



Resources

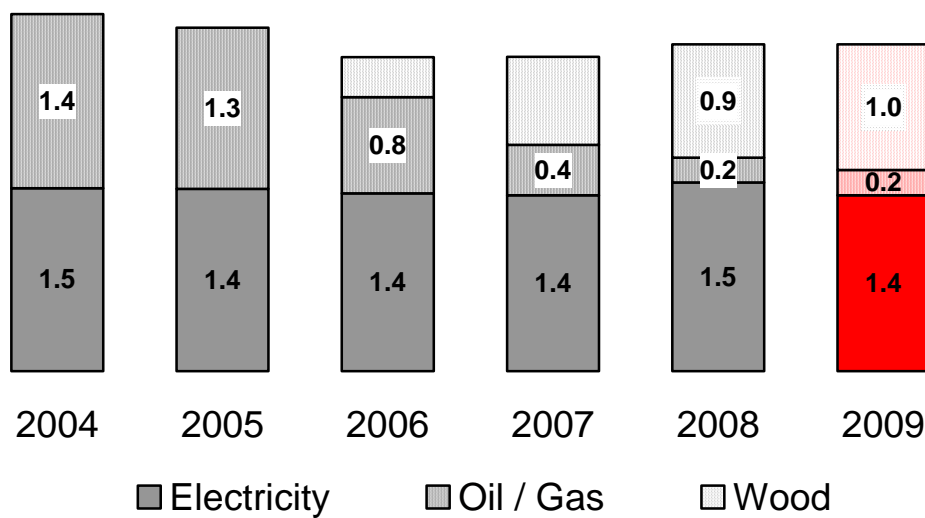
Optimisation of consumption of resources

The following projects were initiated in 2009 in order to decrease consumption of resources:

- reduction of raw water consumption
- elimination of leaks in the compressed air supply system

These projects were also continued in 2010. New measures for optimisation of resource consumption are planned in connection with the supply of liquid nitrogen.

Energy consumption: MWh/t product



Manufacturing waste

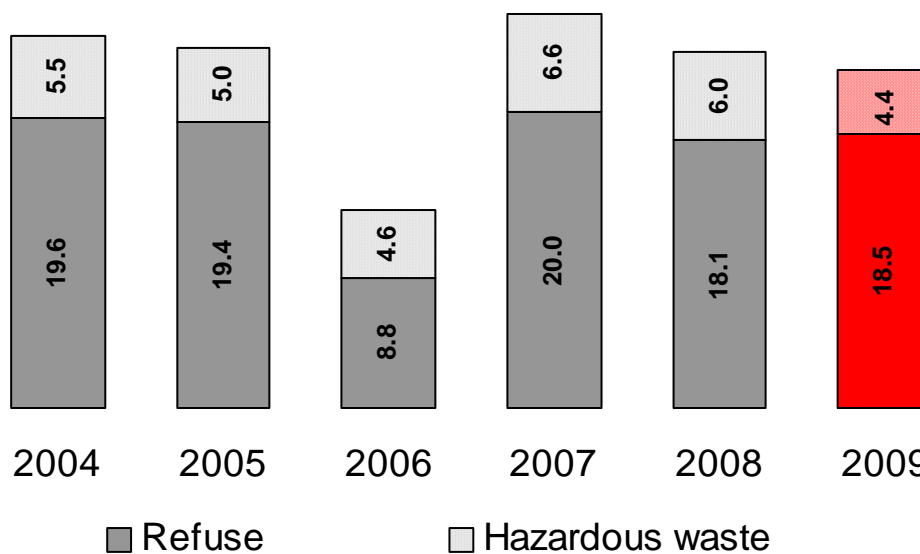
Reduced quantities of hazardous waste compared to the previous year

All waste produced on the production site is disposed of according to its quality i.e. with household refuse in an incinerator plant, as secondary fuel in a cement factory or burned as hazardous waste in a Swiss facility. All plants incinerating our waste products make use of the heat generated.

Our waste management follows the principle of material recycling before incineration or disposal.

Quantities of hazardous waste produced in 2009 were able to be reduced compared to the previous year through increased recycling.

Kg waste/t product



Waste water

A continuing high performance by the water treatment plant

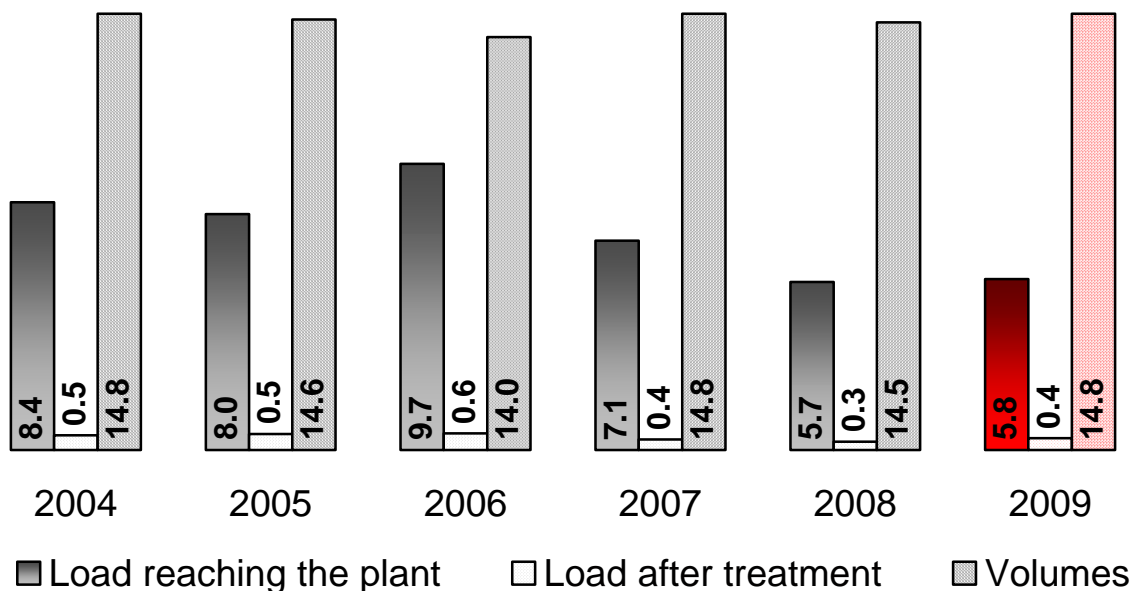
In addition to processing our industrial waste water, the company water treatment plant also treats waste water from the local towns of Rhäzüns, Bonaduz and Tamins. The dry sludge is dewatered and transported to other treatment plants for further processing. Gas generated during this process is made 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 plant. As the water load is made up mainly of organic material, this is shown as TOC (total organic carbon).

The cleaning performance of the water treatment plant for organic carbon was 92%.

Load in kg TOC/t product

Volumes in m³/t product



Air emissions

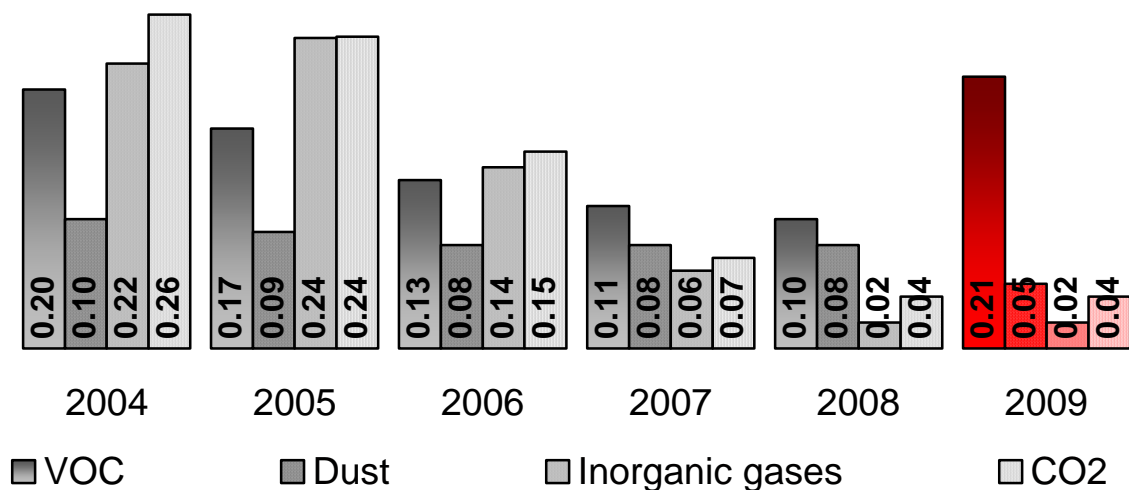
Air emissions at a very low level

For several years now, exhaust air containing solvents has been subjected to afterburning at the Axpo Tegra AG power station so that these levels are very low. Due to technical problems experienced in 2009, an temporary increase in the values regarding VOC emissions was recorded.

In order to allow a comparison of environmental factors, exhaust air emissions are given as an emission factor kg/t of manufactured product.

- 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 performance polymers.
- Dust emissions are mainly fine particles which are not all collected in the exhaust air cleaners.
- Inorganic gases, mainly nitrogen oxides, are generated during combustion of natural gas for heating purposes.
- CO₂ is released during combustion of natural gas or heating oil for heating purposes.

Emission factor in kg/t product



Protection of health

Accidents can be prevented

Despite intensive efforts to prevent accidents, the number of work-related accidents has slightly increased. The seriousness of the injuries incurred on the other hand, has significantly decreased. In 2004, 293 work hours lost/100,000 working hours were recorded. In 2009 this figure had dropped to 95 working hours lost /100,000 working hours. This is a pleasing reduction of more than 67.5%.

Work-related accidents / 1,000 employees

