

Data and Trends

Environmental protection and safety

2010



EMS-GRIVORY
EMS-GRILTECH
EMS-SERVICES

Data and Trends 2010

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 less dependent of deviations in the quantities manufactured annually.

In 2010 the excellent values of the previous years were consolidated.

Realised energy saving projects and high utilisation of the production facilities with little down-time led to a further reduction of the specific energy consumption per ton of product.

Good progress was also made in accident prevention, where besides a decreasing number of incidents, above all the severity of accidents and thus the number of lost working hours was significantly reduced.

On the other hand, the very high plant utilisation required frequent production turnovers, which caused a slight increase in the amounts of waste and waste water.

With the ongoing installation of new capacity, we expect further improvements in these areas in coming years.

Investments

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

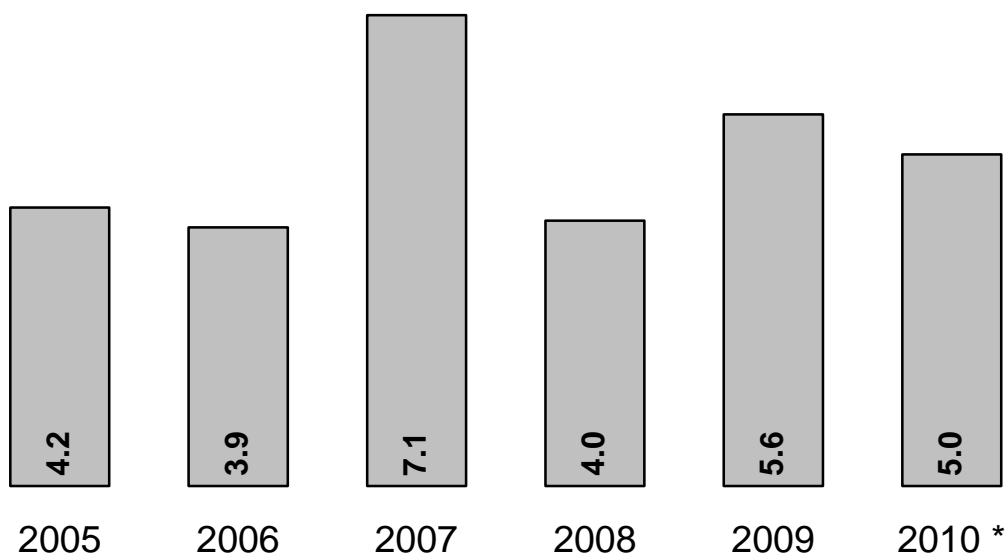
Particular attention was paid to the improvement of energy efficiency, i.e. less energy consumption for the same performance. With this objective, several old, inefficient heating systems have been revamped or replaced.

Furthermore a completely new production process for one of our key products has been introduced, which brings a massive reduction in energy consumption and transportation compared to the old process.

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.

Several projects were started to further improve the ambient air situation and work hygiene in production. These measures, including encapsulation of machinery, improved ventilation etc. will be completed in 2011.

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



* Due to high investments in capacity increases, the percentage of E+S investments has dropped compared to the previous year.

Operating expenses

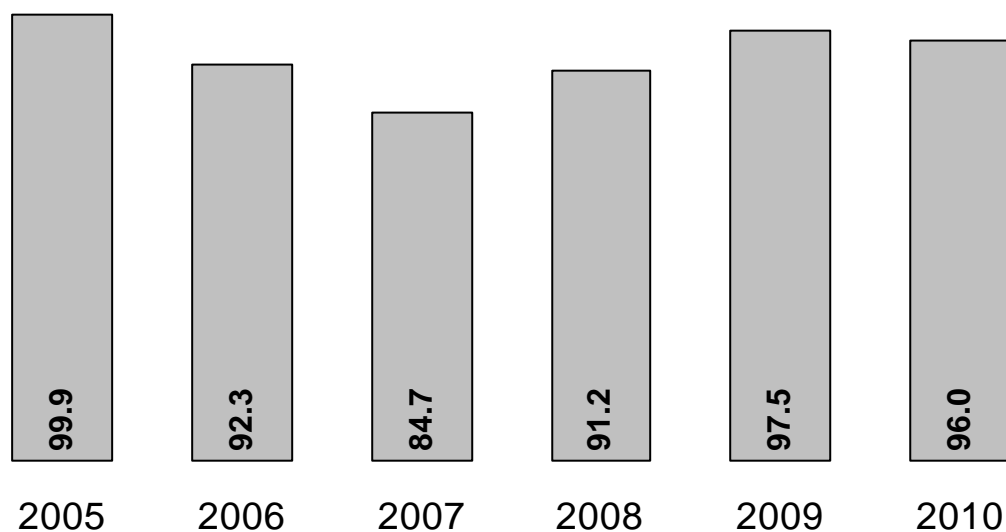
Costs comparable to previous years

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).

Specific costs for waste water and exhaust air cleaning have decreased due to higher utilisation of the plants. On the other hand activities in health- and accident prevention have been intensified.

E+S outlay CHF/t product



Resources

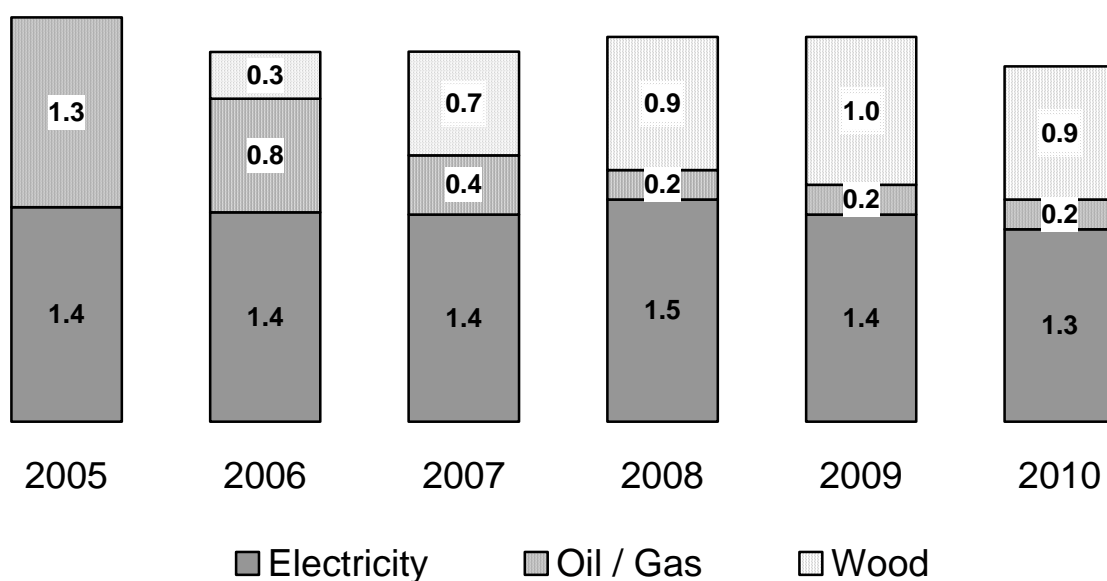
Optimisation of consumption of resources

Efficiency measures towards an ongoing reduction of energy consumption were continued in 2010.

The trend towards more energy-intensive and higher value products continues. Nevertheless the specific energy consumption per ton of product could further be reduced with process optimisations, improved plant utilisation and less down-time in production.

The projects to further optimise resource consumption will be continued in 2011. New measures, in particular in the area of liquid nitrogen supply and consumption are also planned.

Energy consumption: MWh/t product



Manufacturing waste

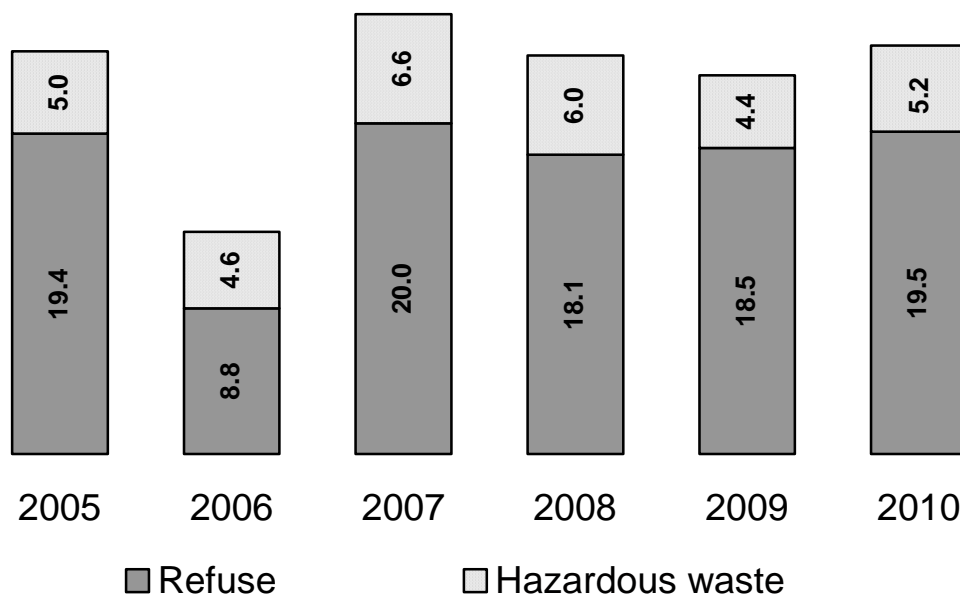
Volumes similar to previous years

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 waste produced increased only slightly in 2010 despite the many production turnovers which were required due to the very high plant utilisation.

Kg waste/t product



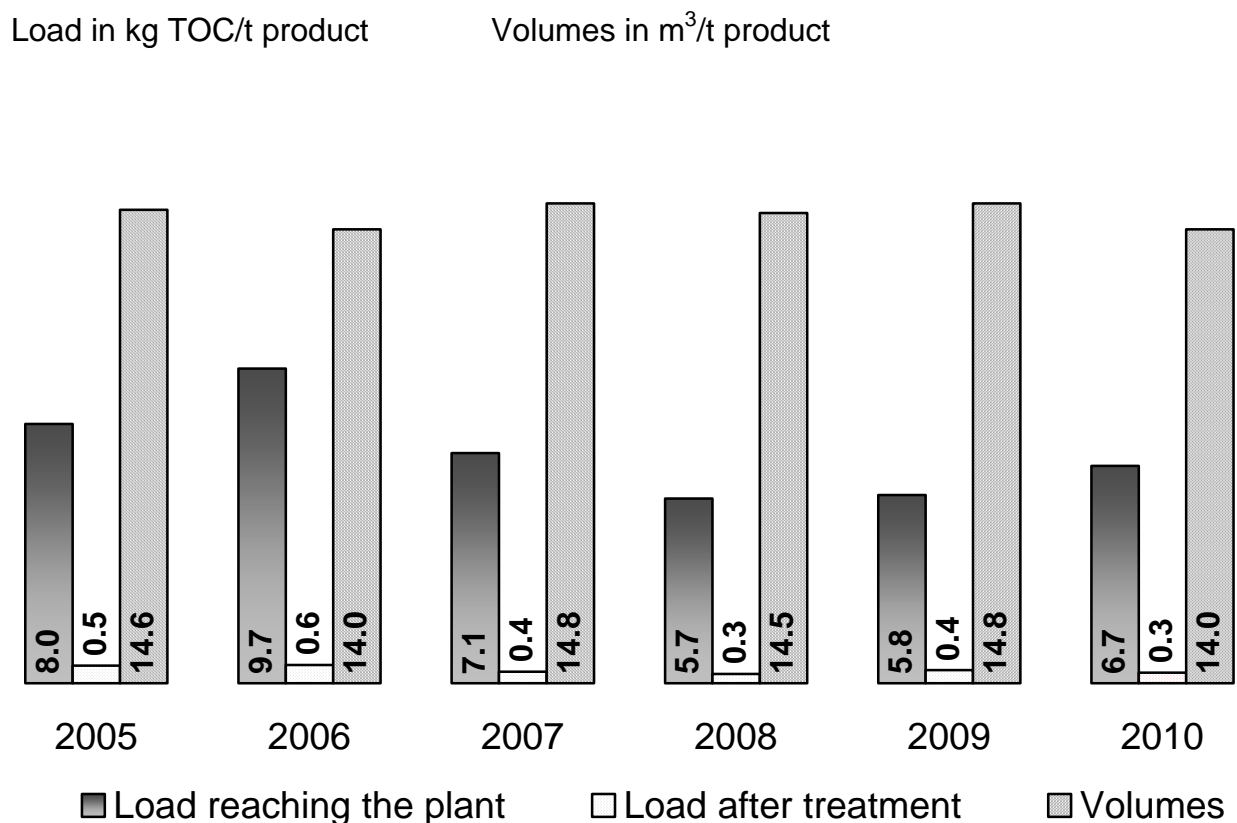
Waste water

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 95%.



Air emissions

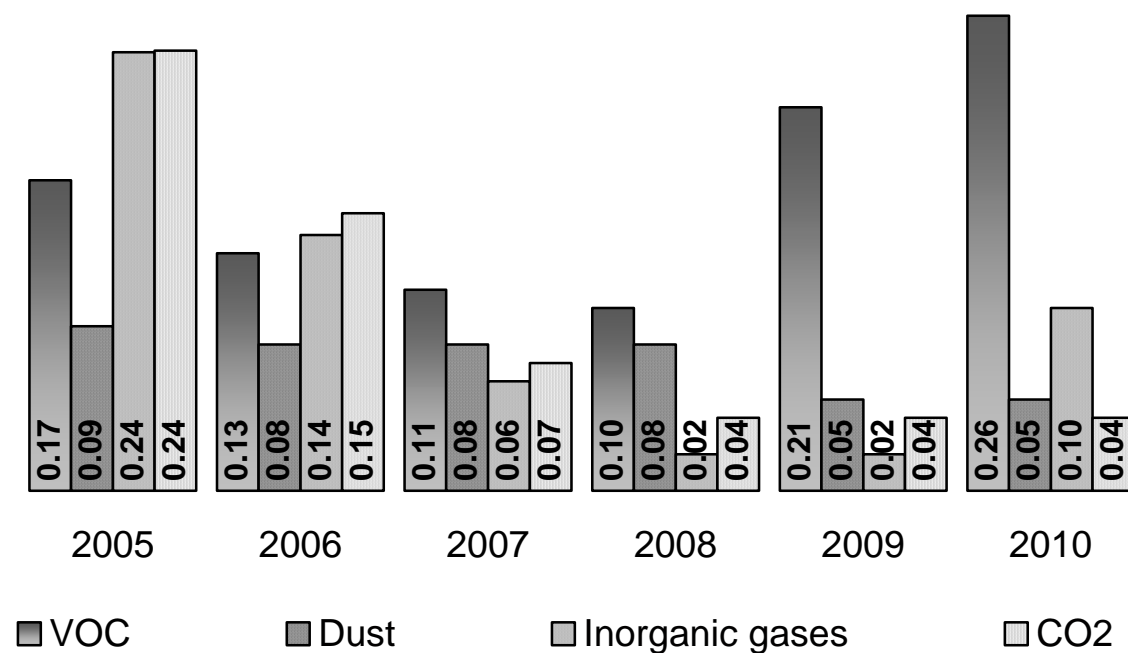
Air emissions at a low level

For several years now, exhaust air containing solvents has been subjected to after-burning at the Axpo Tegra AG power station so that these levels are very low. Due to technical problems experienced in 2009 and 2010, a 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

The number of work-related accidents has stabilised at the level of previous years.

The severity of the injuries incurred, however, has significantly and steadily decreased. In 2005, 210 work hours lost/100,000 working hours were recorded, in 2010 this figure had dropped to 81 working hours lost /100,000 working hours. This is a pleasing reduction of more than 61%.

Work-related accidents / 1,000 employees

