

Data and Trends

**Environmental Protection
and Safety**

2012



EMS-GRIVORY
EMS-GRILTECH
EMS-SERVICES

Data and Trends 2012

EMS acts sustainably and responsibly. Protection of the environment and health and safety of our employees are factors given top priority by the industrial companies in the EMS group during manufacturing and distribution of their high-quality products.

As a supplement to our brochure "Environmental Protection and Safety", we also provide information about current developments and measures and take this opportunity to comment on changes and special events. This data refers 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 finished product. These ratio figures are less dependent on the annual deviations in quantities manufactured.

The year 2012 was characterised by investments to expand and improve existing facilities.

The share of investment for environmental protection and safety (E+S) was increased again. Through a variety of projects the overall environmental impact was successfully improved by achieving less resource consumption and reduced emissions.

Particularly encouraging are the results of the projects for waste prevention. In 2012, the amount of waste could be reduced by almost a third compared to 2011. The airborne emissions and emissions to the wastewater have been further reduced on a low level. The power consumption of the production site decreased by 10% compared to 2011. The loss time during accidents were reduced by 17%.

Investments

Investments in exhaust air cleaning, safety and energy efficiency

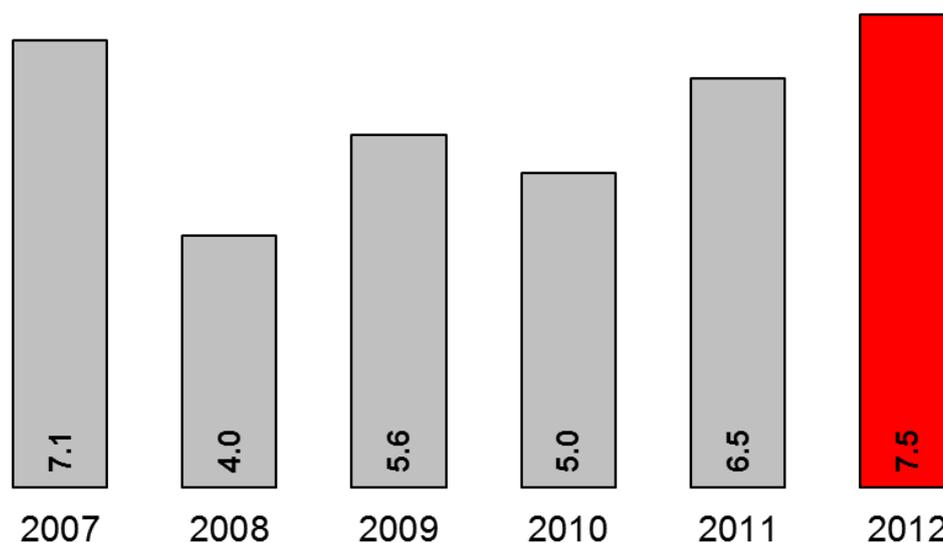
The major E+S investments in 2012 were devoted to the improvement of exhaust air cleaning in one of our main plants, the safe handling of combustible dusts and industrial hygiene. Among other things, new transport systems and newly developed gas scrubbers were installed for powdered solids.

By introducing a new technology in the energy supply the groundwater consumption of the production site could be reduced by approximately 8%.

In addition to this major project many smaller projects were completed to further increase the energy efficiency and thus to reduce the specific energy consumption.

There are several other projects in progress, which lead to a continuous reduction of air pollution and improved hygiene in the workplace. These measures will come to full effect later in 2013. In addition, projects have been initiated, which will lead to a further reduce of the specific consumption of electric energy of our production plants.

Share of investment for environmental protection and security in% of all investments



Operating Expenses

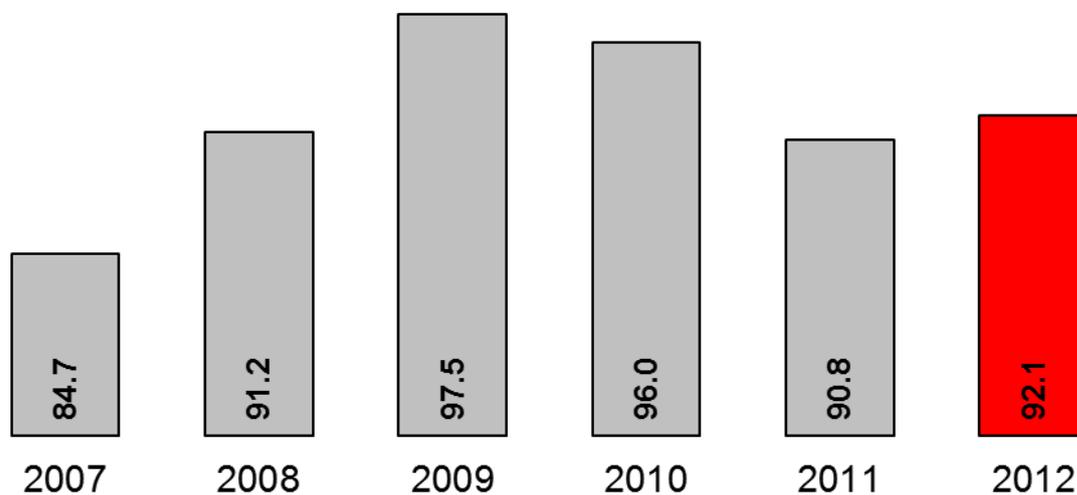
Expenses in the range of last year

Outlay for environmental protection consists primarily of operating costs for wastewater and exhaust air cleaning systems as well as the costs for waste 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).

The specific costs are mostly within the previous year. Improvements in air purification and enhanced measures to prevent accidents led to a slight increase of the operating costs compared to 2011.

E+S outlay CHF/t product



Resources

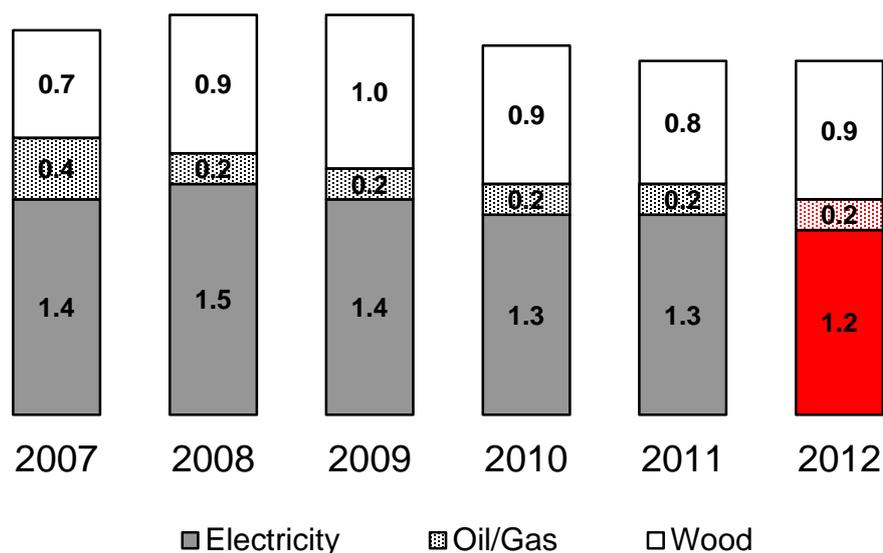
Reduced electricity consumption by new facilities

Through the construction of energy efficient compressed air generation facility, of a modern plastic production line and the continuous development of existing plants and plant supply with liquid nitrogen, the consumption of electricity was reduced by 10% compared to 2011.

The long heating period led to an increased heat consumption about 6% higher than in 2011. In total the energy consumption was 1% less than the previous year.

The on-going energy projects mainly concern the replacement of lighting by energy-saving LED technology. First production and warehouse buildings have been equipped mid-2012. In 2013, the first outdoor and street lighting installations follow on the factory site.

Energy consumption: MWh/t product



Manufacturing Waste

1,000 tons less waste - recycling rate increased to 33%

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

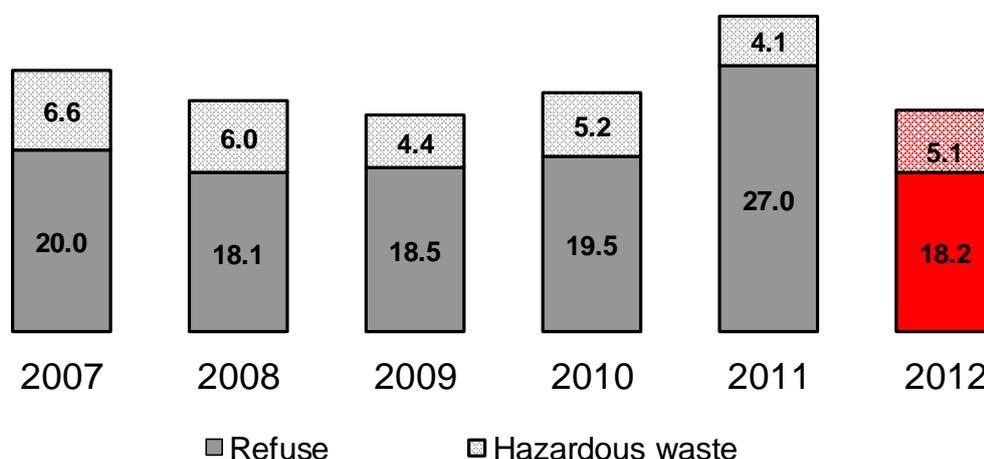
In 2012 a total of 1,200 tons of recyclable materials such as metals, glass, wood, paper and packaging materials were separated from the waste for recycling. This corresponds to a recycling rate of 33% and a slight increase of 1% to the previous year.

The major part of all waste produced on the production site is incinerated. As secondary fuels this waste replaces fossil fuels such as oil or gas in energy-intensive plants of the cement industry. Waste with less heating value is disposed of together with household refuse in incinerator plants.

The waste fraction of plastic waste could be reduced through extensive efforts by nearly 1,000 tons. The plants thus produce about one-third less waste than a year ago.

The hazardous waste is within the scope of the previous years and the normal production tolerances. All hazardous waste generated at the production site is disposed of solely by authorised disposal companies and only in Swiss facilities for handling of hazardous waste.

kg Refuse/t product



Waste Water

Sewage sludge reduced - less organic material in wastewater

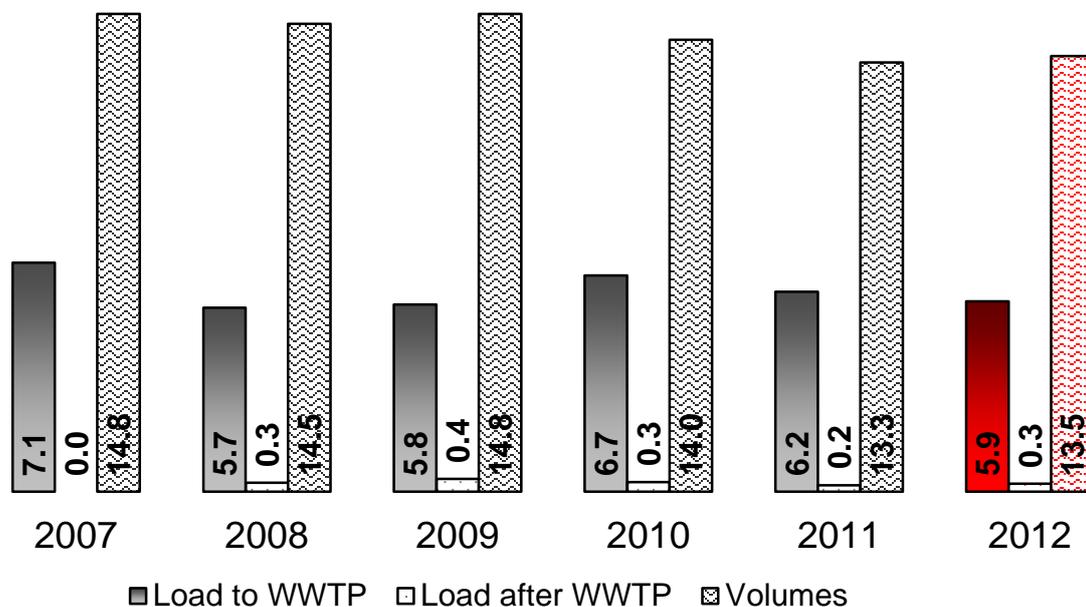
In addition to processing our industrial waste water, the company waste water treatment plant (WWTP) also treats waste water from the local towns of Rhäzüns, Bonaduz and Tamins.

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

In 2012, the amount of organic matter (TOC) in the inflow to the WWTP could be reduced by 5%. The wastewater volume is approximately at the same level. The cleaning performance of the WWTP achieving 96% TOC removal remains at a very high level.

By the dewatering of sewage sludge in a centrifuge, the sludge volume is reduced by about 4,200 tons per year. This pre-treatment reduced the transport volume to the drying facility and facilitates further processing of the sludge to the alternative fuel.

Load in kg TOC/t product
Volumes in m³/t product



Air emissions

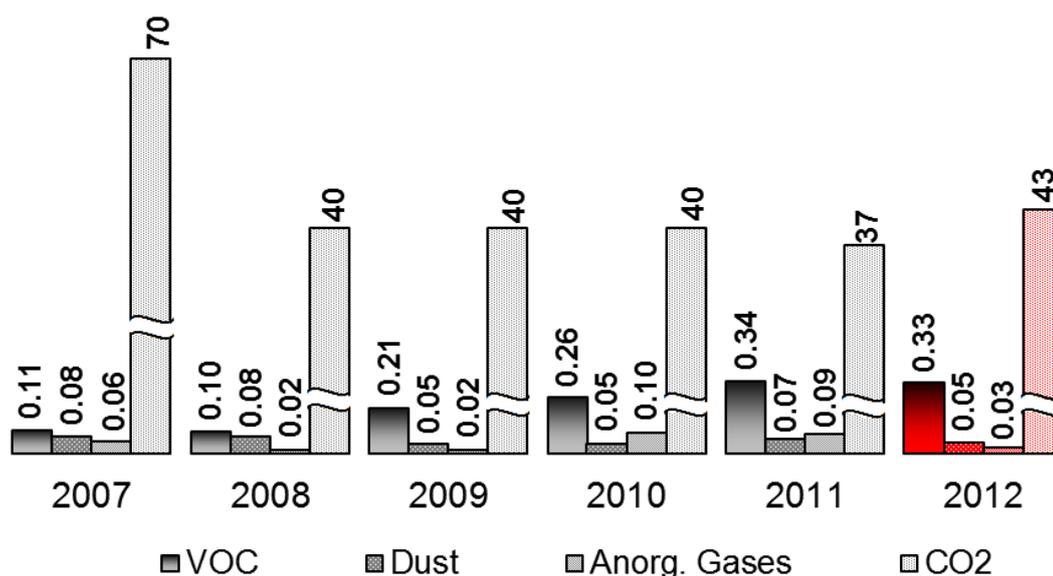
Reduced emissions at a low level - slightly higher CO₂

The production-related emissions of the plants were further reduced in 2012 at an already low level. Only the CO₂ emissions rose in 2012 slightly due to the weather conditions with a longer heating period.

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 [kg/t product]



Health and Safety

Reduction of downtime - Stagnating number of occupational accidents

The number of accidents with lost time per 1,000 employees stagnated virtually unchanged from the previous year. Nevertheless, it was possible to reduce impacts from accidents with a reduction of loss time by 17% compared to 2011. As a consequence less downtime with a shorter recovery and a faster reintegration of employees in the work process was achieved.

The majority of accident events are still tripping, slipping and falling accidents when walking on paths and stairs. Comprehensive prevention programs have not been able to achieve permanent improvements in that field. The programs will be intensified once again in 2013 and supported by experts of SUVA.

The number of non-occupational accidents (NBU) has continued to decline and shows the progress of the safety awareness of employees. EMS supports employees through repetitive actions such as free ski binding adjustment, subsidized bike helmets and protective equipment.

Work-related Accidents with loss of working hours /1'000 Mitarbeiter

