9.0 General Environmental Impact

In principle any industrial acivity has an impact on the environment. With the introduction of the EMS, Hako – Werke are committed to conserving resources and by following certain rules and procedures avoid harmful impact on the environment. The environmental impact at the Bad Oldesloe site is represented on spreadsheets weighted according to ABC criteria for each area of production/stage of production. They serve to monitor the environmental aims and any possible deviation. The environmental impact is assessed annually for its relevance by the manager of the environmental management system.

9.1 Waste

The waste produced at Hako-Werke, at the site in Oldesloe, is composed of five categories laid down by law.

- Waste for recycling that does not require monitoring
- Waste for recycling that requires monitoring
- Waste for recycling that requires specialised monitoring
- Waste for disposal that requires monitoring
- Waste for disposal that requires specialised monitoring

9.1.1 Waste balance sheet

The waste balance sheet is updated annually by our waste co-ordinator.

9.0 General Environmental Impact

9.1.2 Production of waste volume

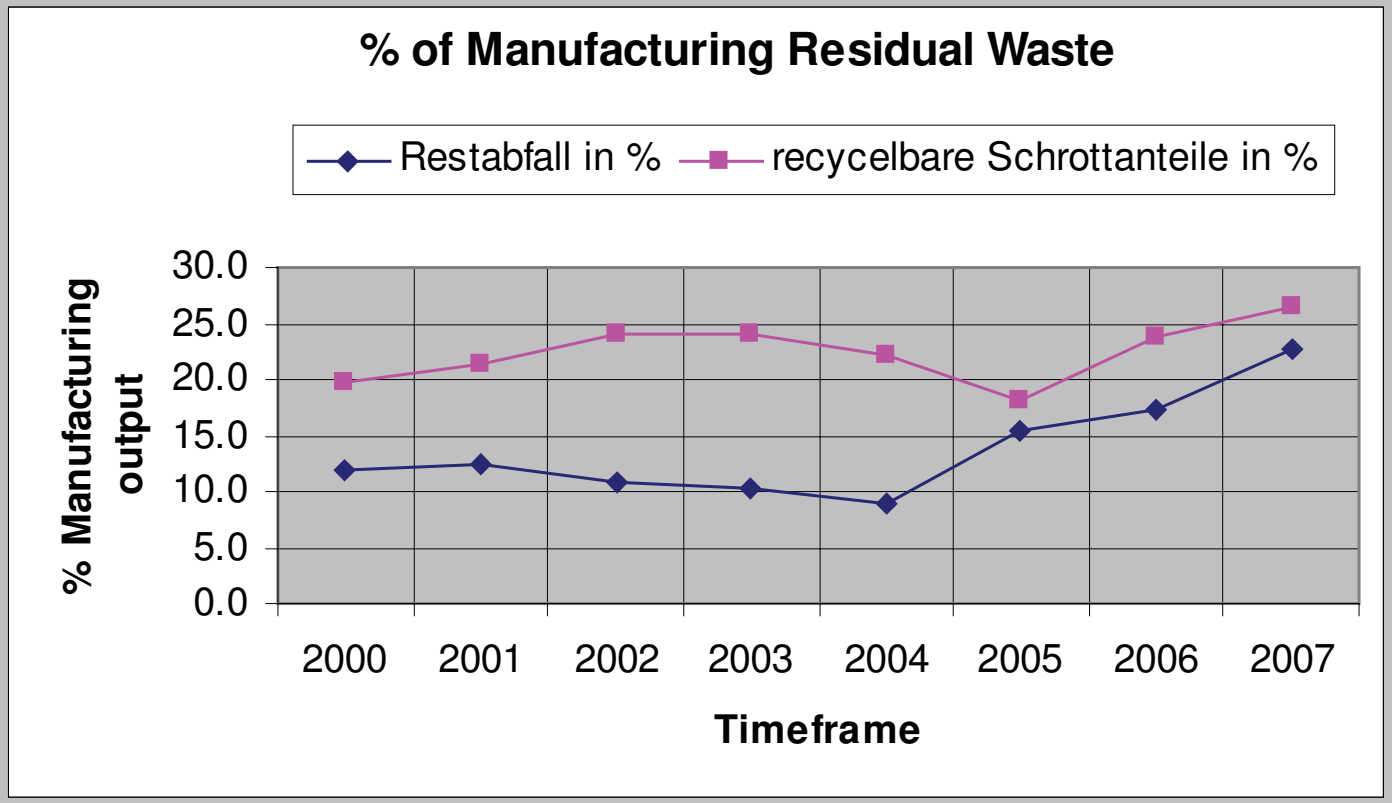
For years now the industrial waste at the site of origin has been reduced to a justifiable amount using specific separation techniques. At the site in Bad Oldesloe products with a total weight of 4063 t were produced during the planning period of 2007. Compared with this the total volume of waste was 1865 t which is 45.9% of the total amount produced. This is an increase of 344 t over 2006 caused by the additional laser capacity taken on by the sheet metal department from other locations. The main waste components were scrap metal, shredder waste, cardboard, wood, household waste and general outdoor waste.
The levels of the different components are listed in the output analysis. Waste disposal records are administered by the waste co-ordinator.

9.1.2.1 Figures of Waste Volume Production

Year	Finished product in t/a	Total waste volume in t/a	Recyclable scrap metal in t/a	Residual waste in t/a	% of residual waste	% of recyclable scrap metal
2000	**2714**	857	537	320	11.8	**19.8**
2001	**2639**	888	563	325	12.3	**21.3**
2002	**2889**	1004	694	310	10.7	**24.0**
2003	**3149**	1081	758	323	10.3	**24.1**
2004	**3567**	1166	830	336	9.4	**23.3**
2005	**3735**	1258	681	577	15.4	**18.2**
2006	**3726**	1521	881	640	17.2	**23.6**
2007	**4063**	1865	1004	861	21.2	**24.7**

9.0 General Environmental Impact

9.1.2.2 Graph of Waste Volume Production



9.0 General Environmental Impact

9.2 Water

The water consumption for 2007 was 11.432 m³. Consumption rose by 4% compared to 2006. 100% of the water was taken from the public supply as drinking water quality. The usage can be separated into two areas:

- Water for production
- Water for drinking and general usage

The main consumption at Hako-Werke occurs in the pre-treatment zone for the surface treatment plant. Since the installation of a new coating facility in the year 2000 and the specific reprocessing of used process water to VE-water the water consumption has seen a steady decrease compared to the year 2000. Water consumption in 2007 decreased by 29.7% in comparison to 2000.

9.2.1 Sewage

The biggest amount of sewage in the form of used watery chemicals occurs at Hako in the pre-treatment zone of the surface treatment plant. This consists of four baths.
Reason: The pre-treatment zone is arranged as a cascade, that means the water overflow of bath 4 returns to bath 3 and onwards to bath 1. A collecting basin catches the overflow of bath 1. The collected, used water is then led to a vaporizer. The vaporizer separates the used water through vaporisation into usable VE-Water and a concentrate {hazardous waste}. The VE-Water is led via a VE-ring back into bath 4. This closes the water circuit. In order to maintain quality, the contents of bath 1 and 2 are led as sewage after neutralisation into the sewers in a 8 weekly cycle and the baths are restarted again.

9.0 General Environmental Impact

9.3 Energy

9.3.1 Electricity and Gas

The main energy sources for the site at Bad Oldesloe are gas and electricity. In 2007 8.098 MWH of gas and 4.458 MWH electricity were used. Our main consumption of gas and electricity occurs in:

- The surface treatment plant, particularly in the sintering furnace, detention water drier and in the pre- treatment zone
- The jet facility, pyrolysis and spray booth
- Compressors for the compressed air supply
- The machine holding bay during pre-construction, testing and welding

The use of a data index shows that from the year 2000 onwards there has also been a positive development in the consumption of gas and electricity. For the first time the data index for electricity and gas showed a small increase in relation to the energy used per kg of manufactured product. This increase is due to a multiple shift pattern in parts of the production. The main savings in energy since 2000 are due to the construction of a new surface treatment plant and the modernisation of the compressed air supply.

9.3.2 Energy for Heating

The primary energy source for the three boilers of the central heating system is gas. In case of emergency or during energy peaks in winter it is still possible to change to fuel oil. The boilers date from 1976 to 1980. Emissions and efficiency of the boilers are regularly checked by our chimney sweeps as required by law. All internal radiators have been upgraded with thermostats of the latest technology.

9.0 General Environmental Impact

9.4 Compressed air network

The station for the compressed air supply was completely renewed in the years 2000 and 2003. As the consumption of compressed air is not measured no data regarding manufactured products per kg can be established. Regular inspections are carried out by the maintenance team in order to discover leakages within the compressed air network. Separate from this the commonly used brass couplers are gradually being replaced by pivot couplers made from steel, because the losses incurred are less. The efficiency of the pivot couplers at the exit areas is higher in comparison to the brass couplers, which makes it possible to decouple the consumer without pressure. With this technology the safety of our workforce, in the area of production, is Improved while the efficiency is higher and the loss of compressed air compared to the previous technology is minimised.

9.5 Lighting

In the administration block and the production areas fluorescent tube technology is mainly used for lighting. In new buildings and during routine maintenance we only use the latest technology with electronic starters SVSG.

9.6 Emissions

The major types of emission are Carbon Dioxide (CO2) Carbon Monoxide (CO), Nitrogen Oxide (NOX), dust, soot particles and steam. These originate on site through direct and indirect emissions. Direct emissions can be mainly traced back to pyrolysis, central heating system, powder coating facility, final tests of equipment and the company's own transport fleet.

(see next page)

Hako
Clean ahead

9.0 General Environmental Impact

9.6.1 Pyrolysis ...

Is used for the thermal cleaning of tools and other devices and requires official approval by law. The process involves adhering to certain statutory conditions. Every three years the reactor has to undergo an external assessment examining permissable emmissions data. The emmissions data in the table below have been calculated.

Emissions through	Ein-heit	2000	2001	2002	2003	2004	2005	2006	2007	% change to 2006
Sintering furnace/warm water preparation										
o CO_2	t	88	86	84	95	112	103	111	121	8.9
Pyrolysis										
o Dust (0,0020 kg / h)	kg	3	3.3	3.7	2.6	2.7	2.5	2.8	3.0	9.1
o NO_2 (0,0046 kg / h)	kg	7	7.3	8.2	6.1	6.2	5.7	6.3	6.9	10.0
o CO (0,0400 kg / h)	kg	60	66	74.5	52.8	54.0	49.7	54.6	60.0	9.8
Spray Booth										
o Paint consumption/ A	kg	2415	2589	2850	2834	1860	1650	1715	1795	4.7
o 60 % Solvent vapour	kg	1449	1553	1710	1700	1116	990	1029	1077	3.9
o VOC-Emissions / h	kg / h	0.91	0.97	1.07	1.06	0.70	0.61	0.64	0.67	4.9
Central Heating System										
o CO_2	t	1550	1436	1418	1610	1493	1414	1525	1725	13.1
o NO X	kg	1,383	1,281	1,265	1,437	1,331	1,262	1,360	1,539	13.2
Final tests / Diesel										
o CO_2	t	27	32	37.4	39.2	47.5	34.7	43.6	36.9	-15.4