CLEAN FACTS 2024

the Sävenäs waste-to-energy plant

COMBUSTION

Line P1	
Commissioned	2001
Output	45 MW
Combustion capacity	16 tonnes/h, 10,8 MJ/tonne
Grate supplier	Martin
Steam boiler	40 bars 400°C
Steam production	60 tonnes/h

Line P4 and P5	
Commissioned	1994-95
Output	2 x 54 MW
Combustion capacity	2 x 22 tonnes/h, 10,5 MJ/tonne
Grate supplier	von Roll
Steam boiler	40 bars 400°C
Steam production	2 x 73 tonnes/h

Line P7	
Commissioned	2009
Output	39,1 MW
Combustion capacity	14 tonnes/h, 11,2 MJ/tonne
Grate supplier	Martin
Steam boiler	40 bars 400°C
Steam production	52,7 tonnnes/h

Waste bunker	
No. of tipping sites	14
Actual useable volume	22,000 m^3
No. of waste cranes	2
Lift capacity	14 tonnes each
Grab volume	10 m^3 each

Slag bunker	
Actual usable volume	1,500 m^3
Slag crane	1
Lift capacity	8 tonnes
Grab volume	3,2 m^3

STEAM AND ELECTRICITY

Steam turbine	ABB Vax MT 17 41,6 MW
Generator	ABB 47,7 kVA

Turbine condenser	
When turbine operation	
Condenser output at full load	115 MW
During by-pass (heat production only)	
Maximum condenseroutput	170 MW

Back-up condenser	
Heat output	170 MW

HEATING AND ELECTRICITY TO APARTMENTS AND RESIDENCES

Our energy production not only serves residential households but also businesses and industries. For added clarity, we have standardized our capacity measurement using residences as the benchmark.

In 2024, the Sävenäs waste-to-energy plant delivered 1 376 000 MWh of heat, equivalent to the annual heat and hot water demand for 135 000 apartments, each with an area of 70 m^2."

The production of the Sävenäs waste-to-energy plant also delivered 221 404 MWh of electricity, which corresponds to the annual demand for 110 500 apartments of the same size.

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FLUE GAS CLEANING

Electrostatic precipitator lines	
Collection efficiency, particles	> 99,5 %
Max particle content after electrostatic precipitator *(in normal state, dry gas and 11 % O_2)*	25 mg/N m³

Wet flue gas cleaning with condensing P4 and P5
Two-stage scrubber, acid and alkaline stages with Adiox fillers and condenser reactor with direct condensation and cooling with absorption heat pumps.

Wet flue gas cleaning with condensing P1 and P7
Hot water economizer, spray scrubber for HCl and heavy metals, alkaline scrubber for SO_2 with direct condensation stage, wet electrostatic precipator (venturi type), condensing scrubber connected to absorption heat pumps.

DeNO$_x$-facility P4 and P5	
SNCR (non-catalytic reduction) and flue gas recirculation	
Reduction agent	25 % ammonia

DeNO$_x$-facility P1 and P7	
SCR (catalytic reduction) and flue gas recirculation	
Catalyzer in 3 layers	
Reduction agent	25 % ammonia

Bag house filter P4 and P5	
Flue gas flow lines 4 and 5	115 000 Nm³/h

Chimney	
Height above ground level	126 m
Flue gas speed	Approx 15 m/s
No. of gas flues	4
Diameter of gas flue	1,6 m
Material P1, P4 and P5	Corten steel
Material P7	Fibreglass-reinforced polyvinyl ester

Absorption heat pumps	
Flue gas condensation	
Refrigerating capacit	4 x 4 MW (Thermax) 2 x 6 MW (Weir-Entropie)
Process cooling	
Cooling output	1 x 1,5 MW (Thermax)
Cooling of cleaned condensate	
Heat output	1 x 1,5 MW (Carrier) Total 80 MW

Cooling tower	
Refrigerating capacity	3 x 20 MW
Cooling medium	External air + water

FLUE GAS EMISSIONS

Substance mg/m³	Annual average 2022	Environmental permit (average over 24 hrs)	EU-Directive (average over 24 hrs)
Particles	0,9	-	10
TOC	0,4	-	10
NH_3	0,5	10	-
HCl	0,2	-	10
CO	22	-	50
NO_X	44*/24**	80*/50**	-
SO_2	1,4	-	50
HF***	0,002	-	1
N_2O***	4,5	10	10
Hg***	4,8	30	50
Dioxins***	0,01	-	0,1 (ng/m³)

All values are expressed as normal m³ dry gas at 11 % O_2 mg/ m³.
** Lines P1, P4 and P5 ** Line P7 *** Measurment twice a year*

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