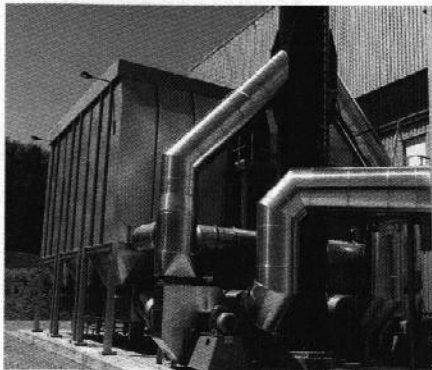


7. Thermal-regenerative exhaust air cleaning (LARA®)



LARA® Dresden

In anticipation of the German Emission Protection Ordinance No. 30 that came into effect on 1st March 2001, the Saxon State Ministry for the Environment and Agriculture had defined the emission protection requirements for biological waste treatment plants in Saxony already by decree in June 1999.

The Dresden plant, as well as in the "Asstar" and "Rennerod" Stabilat® plants, has been equipped with the thermal-regenerative waste air treatment technique known as the LARA® system, which was also developed by Herhof, guarantees that the values achieved in the plant lie well below the required limiting values.

The air treatment and cleaning plant (LARA®) of the Dresden plant defines the current state of the art. A prerequisite for the efficient use of this cleaning technology is the **reduction of the waste air flow to be treated** to the technically feasible minimum with simultaneous **concentration of the TOC¹³ content contained in the waste air.**

Both requirements are achieved by the Herhof process management system, proven in many years of use, in which the computer-controlled bioconversion process is oriented to maximum possible air circulation.

Process description:

In the thermal-regenerative waste air cleaning process the process air loaded with hydrocarbons is first heated using a ceramic heat exchanger module and then fed to the heating chambers situated above it, in which complete oxidation of the hydrocarbons to form carbon dioxide and water is ensured by a defined temperature level (> 850 °C) and a defined retention time (> 2 sec.). During the subsequent passing of the second ceramic heat exchanger, 98% of the heat energy taken up is returned to the heat exchanger.

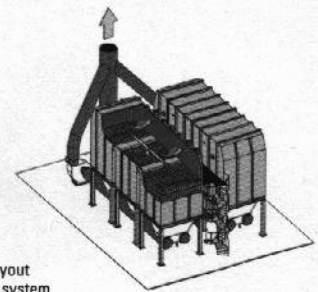
By cyclically switching over the 3 heat exchangers present, associated with intermediate flushing cycles for the prevention of "switching peaks", continuous operation that conforms with the requirements is guaranteed, even for the varying input concentrations that typically occur in the treatment of residual waste.

The 2-line plant design represents an overcapacity and therefore guarantees the operational reliability required under emission protection law. This has already been proven during one year's full load operation of the Rennerod LARA® system.

Limit values for the Waste Recycling Plant Dresden in accordance with the decree of the Saxon State Ministry for the Environment (SMU Dresden) dated 10.06.1999

Concentrations:

Particulates	10 mg/m ³
Particle bound metals	
Cadmium	total 0.05 mg/m ³
Thallium	total 0.05 mg/m ³
Mercury	total 0.05 mg/m ³
Total metals	total 0.5 mg/m ³
Ammonia	20 mg/m ³
Total organic carbon (TOC)	20 mg/m ³
Dioxins and furans, Protection Act No. 17 ¹²	0.1 mg/m ³



Schematic layout of the LARA® system

¹² 17th BImSchV

¹³ Total Organic Carbon



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