

Dioxin removal by ADIOX® in dry flue gas treatment



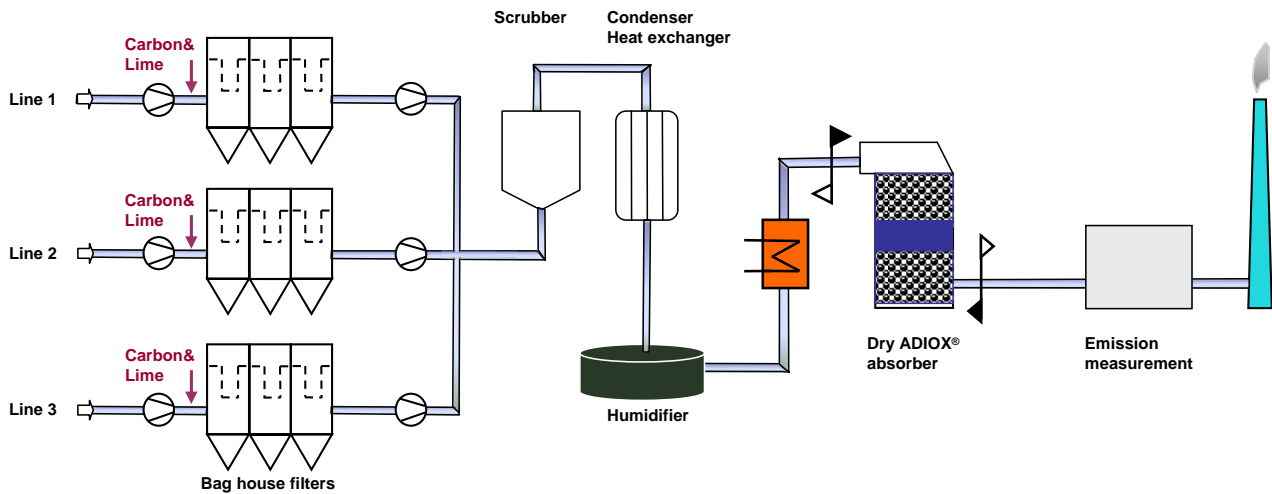
The dry ADIOX® absorber at Gärsstadverket.

Gärsstadverket Waste to Energy Plant, Linköping, Sweden

In June 2006 Tekniska Verken, Linköping awarded Götaverken Miljö the contract for the upgrading of the flue gas treatment plant for incineration lines 1, 2 and 3 at Gärsstadverket. This is the first full scale utilization of ADIOX® in a dry dioxin removal application.

The plant began full operation in December 2006.

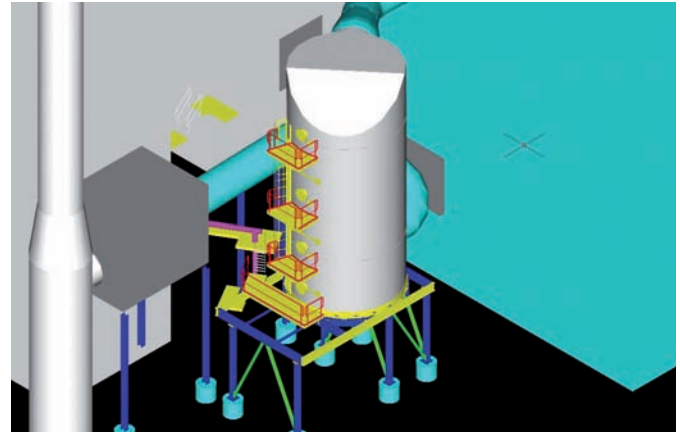




General

ADIOX® tower packings have shown excellent dioxin removal in wet and semiwet applications.

Pilot and laboratory studies have also shown that ADIOX® in a dry absorber provides higher removal levels than in a wet scrubber, as the water film in the wet scrubber limits the mass transfer of dioxins. Less material is thereby required for a fixed removal level. Ideal operational temperatures are 20-40°C above dew point, maximum around 90°C.



3D-layout of the installation.

Design data:

- Flue gas flow to absorber 186,000 Nm³/h, w.g.
- Temperature (after reheater) 73 °C
- Dioxin inlet 1 ng/Nm³ dg@11% O₂
- Dioxin outlet (guarantee) <0.1 ng/Nm³ dg@11% O₂
- Dioxin removal rate (measured) >97%

Description

The unit is designed to reduce dioxin emissions in flue gas. Boiler flue gases currently pass through bag house filters as the first stage in the cleaning process. The flue gases from all lines are then transferred to a scrubber which removes acidic components. Heat is recovered in a condenser heat exchanger and is fed into the district heating system. Final energy recovery takes place in a humidifier, which transfers energy to the combustion air. Flue gases are reheated to 20°C above the dew point before entering the ADIOX® absorber. The absorber is a fully static system filled with two beds of ADIOX® tower packings. The use of ADIOX® in a dry process provides Tekniska Verken in Linköping with efficient dioxin removal and a system in which hot spots (fire hazards) are avoided.



View from the inside of the ADIOX® absorber.

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