Semiwet flue gas cleaning with MERCOX™ and ADIOX® for acids, mercury and dioxin polishing

SAKAB incineration plant for hazardous waste – Norrtorp, Sweden

Götaverken Miljö AB has provided a semiwet flue gas cleaning system to SAKAB’s line 2 followed by a MERCOX™ polishing scrubber common for lines 1 and 2.

The scrubber is used mainly for polishing of acids and mercury but is also equipped with ADIOX® tower packing and droplet separators for additional dioxin removal and prevention of «dioxin memory effect».

The very efficient gas treatment allows SAKAB to process highly contaminated waste without emitting any waste water from the flue gas treatment.

The plant has been prepared for future installation of flue gas condensation to recover additional energy from the flue gas.
Plant description

The SAKAB AB incineration plant for hazardous waste in Norrtorp, Sweden, originally consisted of one line equipped with a semiwet absorber and an electrostatic filter. A baghouse filter was added in 1990. The EU legislation on emissions of HCl, SO₂, and Hg necessitated an extension of the plant. The flue gas cleaning system was upgraded with a MERCOX™ mercury removal scrubber plant in year 2000, designed to also handle flue gas from an additional future incineration line. With this installation, SAKAB is able to manage the peaks in mercury content that occasionally occur during combustion. Furthermore, the plant is prepared for future flue gas condensation to recover energy from the flue gas.

In 2002 Götaverken Miljö supplied a semiwet flue gas treatment system, including a spray dryer and a baghouse filter, installed after a new second incineration line.

ADIOX® dioxin removal has been installed since 2004 in order to reduce the dioxin memory effect in the scrubber and to improve the overall dioxin removal of the system.

The ADIOX® and MERCOX™ processes were developed by Götaverken Miljö in collaboration with KIT (Karlsruhe Institute of Technology, former Forschungszentrum Karlsruhe), Germany. In the MERCOX™ process, mercury (Hg) is separated from the flue gas by injection of the environmentally friendly oxidizing agent hydrogen peroxide plus an additive. The ADIOX® tower packings consist of polypropylene with carbon particles. Dioxins are captured in the patented ADIOX® dioxin removal material and can be incinerated after use. The dioxins are then destroyed.

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