

# Product news

## ADIOX® ABSORBS DIOXINS

The ADIOX® technology for dioxin removal was first introduced on the market in 2002. It has now been installed in 35 waste incineration lines in various countries including Sweden, Denmark, Norway, Finland, Germany, France and the Netherlands. The majority of the deliveries have been tower packings made with Adiox material and installed in wet scrubber systems, but now dry Adiox absorbers are also offered to the market.

The Adiox development started with the observation that plastics can absorb large amounts of dioxins from gases which can later be desorbed. This absorption-desorption equilibrium, known as the Memory Effect, can cause long periods of dioxin desorption from plastic surfaces. In order to avoid dioxin release from the material, carbon particles are dispersed in a polymer such as polypropylene (PP). The dioxins are first absorbed into the PP in this material. Then they diffuse to the surface of the carbon particles, where they are irreversibly adsorbed. The PP acts as a selective barrier, which protects the carbon from other contaminants. The technology has proved to be so successful that it is now recognized not only as a means to minimize the Memory Effect but also as a competitive method for dioxin abatement.



At Måbjergværket in Denmark, wet Adiox scrubbers – in combination with two lines of electrostatic precipitators – have acted as the main dioxin filters since late 2004. According to Götaverken Miljö AB, all 11 dioxin measurements undertaken to date show that the concentrations in the stack are far below the EC waste incineration emission directive limit for dioxins of 0.1 ng TEQ/m<sup>3</sup> (n, d.g., 11 % O<sub>2</sub>; 'n, d.g.' stands for 'normal, dry gas').

A dry pilot absorber, using Adiox tower packings, was installed at line 1 of the Renova municipal waste incinerator in Göteborg, Sweden in 2004. The pilot absorber extracts approximately 3000 m<sup>3</sup>/hour of flue gas (at actual temperature and O<sub>2</sub> content). During the first year of operation, the inlet concentrations ranged from 0.7 to 2.0 ng I-TEQ/m<sup>3</sup> (n, d.g., 11% O<sub>2</sub>), and the clean gas concentrations from 0.002 to 0.02 ng I-TEQ/m<sup>3</sup> (n, d.g., 11% O<sub>2</sub>). There was no apparent trend of decreasing removal efficiency with time. The highest temperature in this test was 90°C. Initial tests with high-temperature-resistant Adiox have also been made.

When used as a main dioxin filter, the required amount of Adiox material is determined on the basis of the dioxin concentration in the raw gas. When used in a dry absorber instead of in a wet scrubber, the removal efficiency per installed amount is higher, which leads to smaller equipment sizes. A simple, cost-effective pollution control system can be obtained by combining an electrostatic precipitator, a multi-functional wet Adiox scrubber and a dry Adiox absorber.

The system is static, which makes it robust and reliable. It is effective even during start-up and upset operating conditions, indicates Götaverken Miljö AB. After some years of use, Adiox can be incinerated, thereby destroying the dioxins and avoiding harmful substances being landfilled.

■ More info from Götaverken Miljö on +46 31 501995 or at [www.gmab.se](http://www.gmab.se)