ABB supplies continuous emission monitoring system (CEMS) for unique waste-to-energy plant in Denmark

The new Amagerforbraending waste-to-energy plant is the most innovative concept for waste management and energy production worldwide. It was completed in 2016, just three kilometre's from downtown Copenhagen.

Rather than hiding industrial processes, the concept wants to connect the people to the issues behind waste management. The architectural design of the plant roof will serve as public leisure landscape and include a snow slope for skiers of all levels.

The form of the emission will be single smoke rings with the diameter of 25 m and 5 m height. This form of the ring is a phenomenon which can be found in nature, for example it has been observed at Mount Etna, Sicily. Also the emission of carbon dioxide is countable by everybody and gives a platform for responsibility. One ring will emit exactly 250 kg of carbon dioxide.

**ABB system**

In order to serve the demand for state-of-the art technical solutions, the ACF5000 CEMS system was chosen due to key new unique features. The Amagerforbraending incinerator did not want to use an additional FID module with Hydrogen for public safety reasons. The ABB solution offered multicomponent measurement and VOC measurement via FTIR.
Furthermore, the ACF5000 is equipped with an internal validation unit and automated QAL3 evaluation and reporting is possible without test gases. So cost, handling and risk of operation can be reduced to a minimum.

**Complete turnkey systems**

The ACF5000 combines the advantages of a FTIR spectrometer and oxygen measurement. The measurement technology FTIR or FID for VOC measurement can be chosen optionally. The high resolution FTIR spectrometer provides selective infrared measurements of infrared active gas molecules with a high sensitivity and stability. The optional FID measures hydrocarbons at low and high ppm levels.

**Further features of the ACF5000**

1. Profibus, Modbus or Ethernet offers unrivalled connectivity to PLC’s, data Acquisition Handling Systems (DAHS) or DCS.
2. Integrated external signal and communicates to PLC, DAHS or DCS via single serial line to safe cabling effort.
3. Increased availability by remote service and diagnosis.
4. Post-process data with function block program.