

**Industry: Electronics**  
**Cleaning toxic exhaust air – good for  
the atmosphere: emission monitoring of HCl**

**Asia/Waldkirch, Tour Stop No. 13 2010 - Large production capacity and climate-friendly emissions are not contradictions. The determination of HCl concentration after the wet scrubber is taken care of by SICK**

**Challenge: Process monitoring and control, quality control, legislative compliance**

It is unavoidable. The use of chemicals in the production of semi-conductors and LCDs cannot be replaced. Solvents and acid steams are released in the process. However, before high concentrations of toxic and aggressive substances are pushed through the chimney the exhaust air must be cleaned, reducing the HCl emission limit values to permitted levels. A wet scrubber is a straightforward method to clean up gases and to remove water soluble substances.

What counts is the final result and therefore the cleaning process must be as thorough as possible – there are legal limits to the annual emission of HCl. That is why effective monitoring and control requires a continuous determination of gas concentration after the scrubber. At the same time, the water content must not distort the measuring result. So the gas analyzer has to determine H<sub>2</sub>O in addition to HCl. The wet scrubbers are working so effectively that concentrations in small ranges below 3 ppm HCl have to be measured. SICK has the measuring solution.



## **120 °C (250 °F) heated gas ducts make challenging HCl measurements possible**

The required measurements and analysis are carried out at the back end of the “cleaning system”, the wet scrubber.

The MCS100E Ca version – an analyzer system based on hot measurement technology – is a device version of the MCS100E HW, tailor-made by SICK specifically to customer requirements. The NDIR method measures HCl with an accuracy of +/- 2% below 10 ppm. As the water content has to be arithmetically deducted to get standardized measuring results for the HCl measurement, filter units as well as the sample leads are heated up to 120 °C (250 °F) to avoid condensation. An extremely high sensitivity is achieved by using a measuring cell with integrated mirrors. The customer favoured SICK and its extractive measuring system MCS100E, because the diameters of the exhaust gas chimneys are too narrow for the use of in-situ measuring devices. The integration of the measuring system into an analyzer container is an option that easily facilitates maintenance and protects the measuring device from ambient influences

## **Measuring smallest HCl concentrations allows production to full capacity**

The MCS100E HW stands out with measuring results characterized by high stability and high linearity – and measures HCl with an accuracy of +/- 2% below 10 ppm.

Gas analyzers from SICK have been used successfully for 25 years now, in the field of emission monitoring. They meet high standards of measuring comfort, require low maintenance and take up the challenge of difficult measuring conditions. Depending on the individual requirement, SICK can recommend an in-situ or an extractive measuring device.