

**Removal of odour in air purification:**

# New process from Austria

*In plants for compost processing, in sludge processing and in bio purification facilities gaseous and malodorous pollutants such as hydrogen sulphide, mercaptans and ammonium form in substantial quantities. These pollutants can in particular be treated with a biofilter. These biofilters work well for exhaust with a uniform loading profile and a constant quantity of exhaust air as well as very careful management, but they are overstrained by any sudden pollutant increase, and the pollutants are released into the atmosphere.*



In the past, as a substitute for waste air treatment with the biofilter a two-stage air purification process was used. This waste air purification process consists of an acid and an alkaline scrubber cleaning stage (two scrubbers), which can remove these pollutants from the exhaust air. The chemical process in the second alkali-level still has an unwanted problem with chemical shrinkage (increased hydrogen peroxide consumption in the alkaline

pH range). Last year envITec Technologie GmbH developed and launched a new, single-stage, waste air cleaning method for odour removal, which only requires one scrubber. With this innovative and newly developed method for odour removal from the exhaust air with an exhaust-cleaning scrubber using sulfuric acid, hydrogen peroxide and chloric (III) acid, all the above pollutants are successfully removed from the exhaust air.

The waste air purification process is carried out in the acidic pH range. The reason for this is on the one hand ammonia deposition from the exhaust air in the acidic range and the associated pH control.

With the introduction of ammonia in the scrubber, the pH rises and ammonia neutralisation is performed with addition (dosage) of sulfuric acid and control of the pH. A further advantage of the method is the higher stability of the hydrogen peroxide from working in the acidic pH range, whose effect is optimised in this pH range. With the introduction of hydrogen sulphate and mercaptans in the scrubber, the redox potential falls in the purification liquid. Through the redox potential reduction the purification solution of hydrogen peroxide and chloric (III) acid is added. Thanks to the high redox potential of the chloric (III) acid, hydrogen sulphide and mercaptans in the acidic environment are oxidised and neutralised by means of chloric (III) acid and hydrogen

peroxide.

So all three of these pollutants are no longer present in the air.

The waste air purification process with this method is easier, more accurate and more independent of control of the concentrations of pollutants than the exhaust air purification of odours with the biofilter. The benefits of the process with the single-stage scrubber are:

- Less space required
- Precise process control using pH and redox control
- Independence from the input concentration of incoming pollutants
- Use of only a relatively small plant
- Ease of maintenance
- No replacement of biotechnology mass after three to five years of biofilter operation

**INFORMATION:**

**envITec Technologie GmbH**  
 Wilhelm-Rudnigger Str. 6 A-9161 Maria Rain  
 Tel.: 04227/845 50  
 Fax: 04227/845 44  
 office@envitec.co.at  
 www.envitec.co.at

