

# **Bioprocesses for air pollution control**

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## **Abstract**

Bioprocesses have been developed as relatively recent alternatives to conventional, non-biological technologies, for waste gas treatment and air pollution control in general. This paper reviews major biodegradation processes relevant in this field as well as both accepted and major innovative bioreactor configurations studied or used nowadays for the treatment of polluted air, i.e. biofilters, one- and two-liquid phase biotrickling filters, bioscrubbers, membrane bioreactors, rotating biodiscs and biodrums, one- and two-liquid phase suspended growth bioreactors, as well as hybrid reactor configurations. Some of these bioreactors are being used at full-scale for solving air pollution problems, while others are still at the research and development stage at laboratory- or pilot-scale. The presentation will also cover a few case-studies that are related to the conversion of waste gases to useful products, e.g. volatile fatty acids and alcohols.

**Keywords:** Biofilter; biotrickling filter; bioscrubber; waste gases; volatile fatty acids