

## Process Engineering Of Biological Waste Gas Purification

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URI: <http://onlinelibrary.wiley.com/doi/10.1002/9783527620999.ch11n/summary>

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Date: 2008

### **Abstract:**

Process engineering of biological waste gas purification aims at the selection and operation of biological waste gas purification technologies with the ultimate aim of assuring mass transfer and biodegradation of one or more pollutants in a waste gas stream. Biodegradation of the pollutants occurs when microorganisms use the pollutants as a carbon source or an electron donor. In some special situations, microorganisms using a particular substrate such as glucose, ethanol, etc., can also oxidize another pollutant. This is due to unspecific metabolism by the enzymes of organisms and is called cometabolism (Alexander, 1981). The extent to which biological waste gas purification can occur is determined mainly by the physicochemical characteristics of the pollutant(s), the intrinsic capabilities of the microbial physiology and ecology, and the operating and environmental conditions. When selecting the bioreactor technology, focus is placed on the operational and control requirements needed to ensure an optimal chemical and physical environment for mass transfer and biodegradation so as to achieve a high and constant removal efficiency of the pollutant.