Biofiltration of vaporous mixture of toluene, acetone and methyl ethyl ketone by Pseudomonas putida

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Removal of volatile organic compounds (VOCs) from a polluted air stream using a biofiltration system is highly efficiency and has low installation and maintenance costs. Ketone compounds and toluene widely used in manufacturing processes are known as high-priority toxic VOCs. In this study, we applied a new kind of inorganic packing material, which is glass type material to evaluate biodegradation of acetone MEK and toluene mixture, such as the effects of empty bed residence time, VOC inlet loading rate on the removal efficiency and elimination capacity of VOC. The continuous performance of the biofilter was determined at the air flow rate of 15L/min. Pseudomonas putida was used to degrade the VOC mixture, and the microorganisms inoculated on the surface of packing material was also observed by scanning electron microscopic (SEM).