

Krirk Wongsontam 2006: Biofiltration of Benzene Contaminated Air with Agricultural By-Product Filter Media. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Associate Professor Winai Liengcharernsit, D.Eng. 93 pages. ISBN 974-16-1921-9

Nowadays, treatment of contaminated air using biofiltration technique becomes more interesting and is an interesting alternative for VOCs vapor treatment. This is because the biofiltration process does not need advanced technology in operation. It can provide high treatment efficiency at low cost and no waste is generated from the treatment process.

This research is conducted to study the efficiency of the biofiltration process in treating benzene-contaminated air using agricultural by-product, peanut shell and rice husk, as filter media. The experimental results show that, for peanut shell media at air flow rates of 0.42, 0.85 and 1.27 litre/minute/litre of filter media, the obtained removal efficiencies are 100%, 100% and 69.2% respectively, for benzene concentration of 50 ppm. In case of 100-ppm benzene concentration, the obtained removal efficiencies are 95.5%, 60.6% and 49.7%, respectively. In the case of rice husk filter media, the experiment is conducted at the air flow rates of 0.42 and 0.85 litre/minute/litre of filter media, due to its relatively low treatment efficiency. At 50-ppm benzene concentration, the obtained removal efficiencies are 61.4% and 35.1%, respectively. In case of 100-ppm benzene concentration, the removal efficiencies are 41.5% and 19.3%, respectively.

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Thesis Advisor's signature

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