

Varaporn Kongsupapsiri 2010: Development of Wet Scrubber for Deodorizing of Block Rubber Drying Process. Master of Science (Environmental Technology and Management), Environmental Technology and Management, Department of Environmental Science. Thesis Advisor: Assistant Professor Jukkrit Mahujchariyawong, Ph.D. 85 pages.

Air pollution generated in drying process of block rubber factory contains volatile fatty acid (VFAs) that affects the environment and health. This study focused on some factors which may affect the efficiency of wet scrubber system for using in design and development of wet scrubber in the block rubber manufacturing industry. Acetic acid was used as a main parameter with propionic acid and butyric acid to compare efficiency of wet scrubber. Modified reactor tank of wet scrubber was designed to deodorize by compressing exhaust from drying process and feed the exhaust through inlet at the bottom of reactor tank. After exhaust contacted to the water layer, it was released through outlet at the top of reactor tank. The result of treatment with and without nozzle at the top, inside of reactor tank indicated almost the same deodorizing efficiency 80.19 and 79.67 percent. VFAs absorption of water layer had sufficient potential for treatment. Furthermore, plastic spherical floating balls which water and air freely passed were used as media to increase retention contact time. The result showed deodorizing efficiency was increased 9.51 percent more than non-media reactor tank. In the case of 0.001 percent surfactant solution with media, deodorizing efficiency was increased 13.41 percent more than treatment with only water. For the study of optimal condition control, the temperature was inversely proportional to deodorizing efficiency. When the temperature increased from 20 to 60°C, the deodorizing efficiency decreased from 96.67 to 83.67 percent. Saturation point of the water layer in reactor tank was investigated by using pH of water layer as a parameter. The pH value decreased when the water absorbed VFAs and the pH was 4.6 at the saturation point.

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