ABSTRACT

Rice dust inhalation by mill workers can interfere lung function. The longer the workers exposed to grain dust the lower the lung function. One way to remove rice dust is by using wet scrubber. This study aims to examine the ability of wet scrubbers in reducing rice dust covering the media bed variation, the pressure difference, and the number of columns.

This study begins with a preliminary analysis including the added weight of rice per running to find out the weight of dust that came off and the length of time required for each running. There are three research variables used i.e. media bed, the pressure variations, and variations in the number of columns. Variations include bed media with the porosity of 2 mm, 3 mm, and 4 mm. The variations of pressure used were 20, 30, and 40 psi. While variations in the number of columns is 1 column, 2 columns and 3 columns. Repetitions were performed in 5 times for each variation. The parameters examined were weight of dust before and after running wet scrubber.

The results showed that 2 mm porous beds had the average efficiency of removing the rice dust at 87.52 %, 3 mm porous bed at 76.76 %, and 4 mm porous bed at 74.06 %. One column had the average removal efficiency of rice dust at 76.21 %, two columns at 78.49 %, and three columns at 83.64 %. Pressure at 20 psi had an average removal efficiency of rice dust at 78.73 %, 30 psi at 81.94 %, and 40 psi at 77.66 %.

Key Word : Wet Scrubber, Rice dust, bed media, pressure difference, number of column