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Evaluating the Risk of Respirable Dust Exposure Among Employees at The Meru Furniture Factory

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Structured Abstract

Background: In a work setting, particularly in the industrial sector, effects of airborne particulates such as exposure to respirable dust are harmful to health and safety of employees. This study aims to determine the concentration of respirable dust that affect the furniture factory workers, to evaluate the possible health risk that may happen to the furniture factory workers who are exposed to the respirable dust via designated questionnaires, and to compare between concentration of respirable dust in furniture factory with the Permissible Exposure Limit (PEL). This research studied the respirable dust contamination among the employees in Meru furniture factory.

Methods: Measurements of respirable dust concentrations were conducted by using the NIOSH Manual of Analytical Methods (NMAM) 0600 at strategically selected sampling points. Validated questionnaires were given to the employees to gather relevant background information and respiratory complaints from them. The method was selected because it focused on the particulates not otherwise regulated and was more specific for respirable dust. Next, the data were analyzed by using SPSS software to compare between the concentration of respirable dust in furniture factory with the PEL.

Results: This study shows that concentration of respirable dust in the furniture factory were 1.7 mg/m^3, 0.2 mg/m^3, and 2.0 mg/m^3, which are all below the PEL of 3 mg/m^3 set by USECHH Regulation 2000. After performing a questionnaire survey, it was found that a few employees have some respiratory issues at certain times. The comparison between concentration of respirable dust in furniture factory with the PEL by using SPSS software showed that there was statistically significant difference.

Conclusion: In conclusion, the findings of this study indicated that concentration of respirable dust among Meru furniture factory workers did not exceed the standards of USECHH Regulation 2000. From the questionnaire survey, it was found that most of workers reported no severe diseases, with only a few of them experiencing mild symptoms that depending on working conditions and exposure duration. Statistical analysis using SPSS revealed a significant difference between the measured respirable dust concentrations and the PEL of USECHH Regulation 2000 ($p < 0.05$).

Keywords: Respirable Dust, Furniture Factory, NMAM 0600, Questionnaire Survey, USECHH Regulation

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