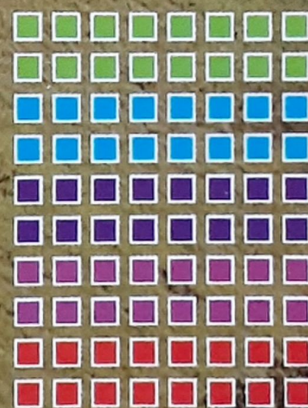




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## PARTICULATE MATTER ANALYSIS IN AIR OF A HIGH DENSITY CHRYBOTILE ASBESTOS RELATED PRODUCTION FACTORY IN SRI LANKA

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Particulate matter (PM) is the generic term to classify air pollutants comprising of suspended particles in air. PM<sub>10</sub> and PM<sub>2.5</sub> are mostly considered because of their possible respiratory toxicity. The most serious health hazard of an asbestos related production factory (ARPF) is asbestos fibers, because they can cause asbestosis. PM of the air of an ARPF consist of not only asbestos fibers but also other atmospheric particles. The aim of the present study was to determine the PM in air of an ARPF. One of the largest ARPF in Sri Lanka, with two production facilities (PF) was selected for this study. Seven sampling sites were selected from PF1(Admin complex (AC), Loading area (LA), Sheets cutting area (SC), Sheets removing area (SR), Cement silo (CS), Broken sheets dumping area (DA), near the pulverizing machine (PL) and five sampling sites were selected from PF2 [near the stores (ST), (LA), (SC), (DA), (PL)]. APM 550 Fine particulate air sampler was used for sample collection. Six samplings were done from both PFs. Control samples were collected from the National Institute of Fundamental Studies (NIFS). Initial weight (W1) and final weight (W2) of the filters were measured using analytical balance and sampling duration was 30 minutes. The highest PM<sub>2.5</sub> value was observed from PL of PF2 (258  $\mu\text{g m}^{-3}$ ) while the lowest value was observed from AC in PF1 (37  $\mu\text{g m}^{-3}$ ). The highest and the lowest PM<sub>10</sub> values were observed from the same sites as PM<sub>2.5</sub> (387  $\mu\text{g m}^{-3}$ , 67  $\mu\text{g m}^{-3}$ ). Control sample PM<sub>10</sub> and PM<sub>2.5</sub> values were 46  $\mu\text{g m}^{-3}$  and 23  $\mu\text{g m}^{-3}$ . WHO maximum limit for PM<sub>10</sub> and PM<sub>2.5</sub> are 50  $\mu\text{g m}^{-3}$  and 25  $\mu\text{g m}^{-3}$ . The PM values were higher at PL due to continuous breakage of waste roofing sheets, while the PM values were lower at AC due to the concealed conditions. Therefore, the risk of PM inhalation is higher for ARPF workers and proper precautions should be taken to mitigate the risk.

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**Keywords:** APM 550, Asbestos, Occupational health, Particulate matter (PM)