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"THE EVALUATION OF DIFFERENT SAMPLING METHODS OF WOOD DUST"

F. Golbabai ; A. Tirgari ;M. Mahmoudi

Abstract:

In order to compare sampling efficiencies of total and inhalable dust methods, three airborne dust sampling systems , 7-Hole sampler , close and open face filter cassette were compared side-by-side , as stationary and for the personal samplers , in a wood working industry to evaluate their relative efficiency. A total of 162 samples were collected. The study of particle size distribution by cascade impactor indicated that the particles smaller than 4.7 and 11 comprise about 13% and 30% of biology total dust respectively and therefore about 70% of particles are greater than 11. The 7-Hole gave a higher dust concentration measurement than open face and close face filter cassettes, in all processes, $P < 0.05$. This significant elevated concentration is probably due to higher sampling efficiency of 7-Hole sampler for particles $\text{diam} > 11$, compared to the open face and close face filter cassettes. Open face and close face filter which were expected to give equivalent results measured statistically equivalent dust concentrations.

Keywords:

Total dust . Inhalable dust . 7-Hole samplers . Open face samplers . Close face samplers

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