

The Respirable and Inhalable Fraction of Suspended Particulate Matter Captured from Oil Producing Community

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Abstract: The inhalable and respirable suspended particulate matter are subset of the total suspended particulate matter in the atmosphere which are insidious to human, vegetation and non- living material. This work focuses on the spatial distribution of respirable and inhalable particle suspended in the atmosphere and they vary with meteorological parameters as well as their toxicity potential. The respirable and inhalable fraction were captured using a portable and a programmable SKC Air Check XR 5000 High volume Gravimetric sampler and I.O.M (Institute of Occupational Medicine) Edinburgh, Multi dust sampler in an urban area of Delta State from December 2008 to April 2009. The concentration range of the respirable suspended particulate matter was $156.25\mu\text{g}/\text{m}^3$ - $416.67\mu\text{g}/\text{m}^3$ while inhalable was $208.33\mu\text{g}/\text{m}^3$ - $1093.75\mu\text{g}/\text{m}^3$. The correlation coefficient for respirable and inhalable suspended particulate matter with wind speed was (0.67) and the correlation coefficient for respirable and inhalable suspended particulate matter with relative humidity was (0.55). While the correlation coefficient of respirable and inhalable suspended particulate matter with temperature was (0.49). The ambient temperature and relative humidity were found to be relatively high with low wind speed of between 0.24 and 0.97mls.

Keywords: *Inhalable particles, Respirable particles, Meteorological Factor, Toxicity potential, Urban Area*

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