

Measuring and Evaluating the Effectiveness of Mobile High Efficiency Particulate Air Filtering on Particulate Matter within the Road Traffic Network of a Sample of Non-Sparse and Sparse Urban Environments in the UK

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Abstract : This research evaluates the efficiency of using mobile HEPA filters to reduce localized Particulate Matter (PM), Total Volatile Organic Chemical (TVOC) and Formaldehyde (HCHO) Air Pollution. The research is being performed using a standard HEPA filter that is tube fitted and attached to a motor vehicle. The velocity of the vehicle is used to generate the pressure difference that allows the filter to remove PM, VOC and HCOC pollution from the localized atmosphere of a road transport traffic route. The testing has been performed on a sample of traffic routes in Non-Sparse and Sparse urban environments within the UK. Pre and Post filter measuring of the PM_{2.5} Air Quality has been carried out along with demographics of the climate environment, including live filming of the traffic conditions. This provides a base line for future national and international research. The effectiveness measurement is generated through evaluating the difference in PM_{2.5} Air Quality measured pre- and post- the mobile filter test equipment. A series of further research opportunities and future exploitation options are made based on the results of the research.

Keywords : high efficiency particulate air, HEPA filter, particulate matter, traffic pollution

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