

Effect Of Diesel Exhaust Particles On High Efficiency Air Filters.

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Abstract

Diesel exhaust particles are commonly found in urban environments. They are harmful to human health as demonstrated by many previous health studies. Furthermore, these fine particles can affect the reliability of sensitive electronics and power equipments. In critical applications, high efficiency air filters are used to remove these nanoparticles from the air stream. In this study, high efficiency membrane air filters are exposed to the exhaust fume of a 5kW diesel power generator. The exhaust fume is conditioned with fresh ambient air to control the particle size distribution. A scanning mobility particle size (SMPS) monitors the particle size to ensure its stability. The filters are continuously exposed to the exhaust fume to observe the impacts on filter efficiency and pressure drop. The fractional filter efficiencies for dioctyl-phalate (DOP) particles from 30 to 300 nm are measured before and after the exposure to determine the effect of the nanometer diesel particles. The result is presented in this paper.

Keywords: high efficiency air filtration, membrane, diesel exhaust particles

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