

Unmet Needs with Respect to Filtration of Nanoparticles

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In recent years, engineered nanoparticles have been developed with important properties. With length scales in the 1 and 100 nm size range, engineered nanoparticles are manufactured for specific applications or for specific properties realized due to their nanoscale dimensions. The performance of conventional filtration to control a range of engineered nanoparticles is not currently well tested. Measuring the ability of personal protection equipment to protect against engineered nanoparticles is listed as an important topic in Environmental, Health, and Safety Research Needs for Engineered Nanoscale Materials, September 2006 (www.nano.gov). Modifications to aerosol filtration test methods will be presented to address differences in nanoparticle behavior that are not observed with larger particle sizes that can influence the measured filtration efficiency. The data of filter efficiency to about 10nm obtained with test aerosol for general ventilation filters conducted under USEPA funding will be presented. The research needs for nanoparticle filter testing are outlined.