U.S. DEPARTMENT OF ENERGY

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Evaluation of SASS® Filters

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Pacific Northwest
NATIONAL LABORATORY

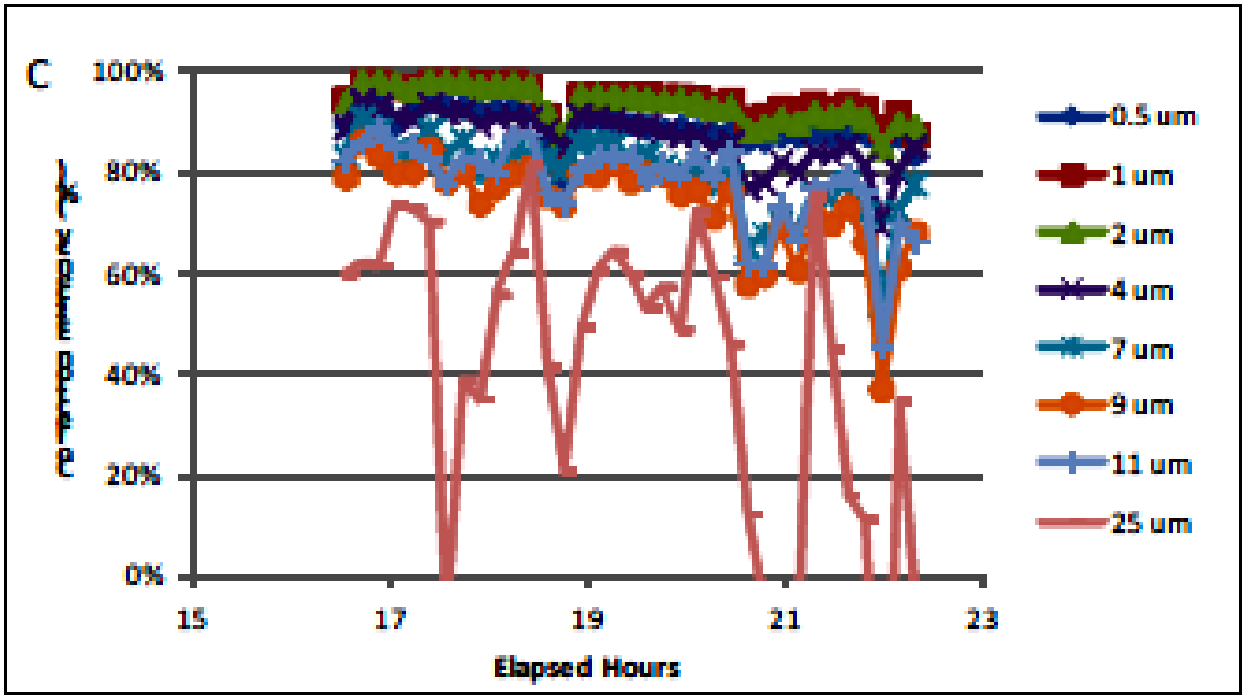
Proudly Operated by Battelle *Since 1965*

Battelle Filter Study:

B. G. Fritz, Evaluation of SASS® Filters, September 2011, Pacific Northwest National Laboratory, prepared under DOE contract DE-AC05-76RL01830.

Biological Filter

"A second phase of testing was conducted inside of a ventilated building where an aerosol generation system was used to vary the aerosol concentration… The system used local dirt as the dust source. For both sets of testing, the majority of the aerosol composition was considered to be inorganic. During the second phase of testing the biological filter, initial measurements were conducted for several hours, then stopped while sample collection on the filter continued. Measurements were then restarted the following morning. This provided a measure of the filter collection efficiency after significant particle loading on the filter has occurred."



Efficiency results of second test method where the biological filter has been operated for 17 hours to accumulate a significant particle loading before being monitored for an additional 4.5 hours with a MetOne particle analyzer.

Radiological Filter

" The radiological air filter had very high collection efficiency (as expected) at all size ranges (Table 1). There was no evidence of any decrease in collection efficiency at higher aerosol concetrations or particle loading on filter. The combined average collection efficiency across all sizes was 99.94%. Total aerosol mass concentration during this test was 140 ug/m^3. "

Size Range	0.5-1 µm	1-2 µm	2-4 µm	4-7 µm	7-9 µm	9-11 µm	11-25 µm	>25 µm
Average Collection Efficiency	0.9995	0.9999	0.9999	0.9999	0.9995	0.9995	0.9991	0.9978

Table 1- Collection Efficiency for the radiological air filter.