Personal Aerosol Monitor

Motivation

Airborne particulate matter (PM) has detrimental health effects for humans. The currently available compact instruments to measure PM cannot resolve ultrafine particles (<~0.1 micron) that are generated in combustion processes (e.g. Diesel soot, wood combustion, cigarette smoking - all known carcinogens). There are instruments which can see those small particles, but they are typically large, heavy, complex and often quite expensive.

With the advent of nanoparticle manufacturing, the monitoring of the exposure of individual workers to nanoparticles (similar to dosimetry in the nuclear industry) will become important. For such a monitoring to be effective, the instrument must be simple to use, and be able to warn a worker in real time in case of exposure.

The personal aerosol monitor developed at the institute for aerosol- and sensor technology addresses the issue of measuring ultrafine particles reliably for individual workers. It measures particle number concentration, average particle diameter, and the lung-deposited particle surface, a quantity which toxicologists believe to be more important for health effects than the usually measured particle mass.

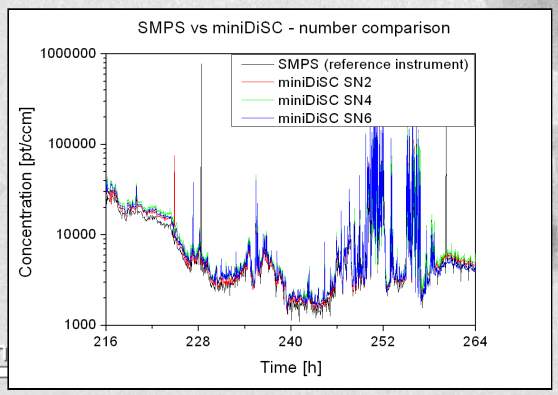
Specifications

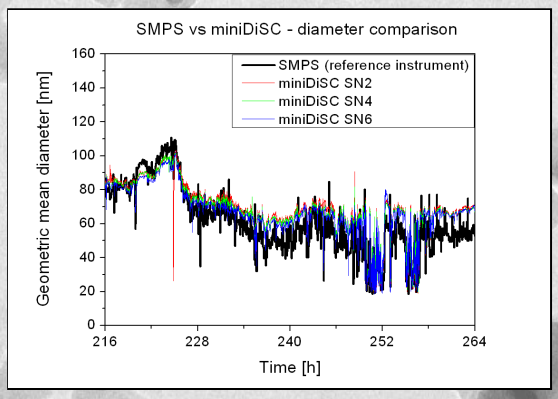
Size: 180x90x40 mm
Weight: 670 g
Battery life: ~8 hours
Data storage on internal SD-card
Concentration range: ~1'000-~1'000'000 pt/ccm
Accuracy: +- 30% typical (see experimental results below)

Optional carrying case and neoprene carrying pouch available

Availability

Pre-production units are available for testing now. Production units are expected to be on sale beginning in April 2010.





Contact

Interested in testing or buying a personal aerosol monitor?
Please contact Dr. Martin Fierz, FHNW, 5210 Windisch +41 56 462 45 96 ● martin.fierz@fhnw.ch ● www.iast.ch