CH Technologies Solutions

Sampling Systems Case Study – M&G 2

Real-Time Air Pollution Study in the Albany NY Albany South End Community Air Quality Study

Real-Time Air Pollution Study in the Albany NY Albany South End Community Air Quality Study (and potential impacts on health)

Problem Statement

CH Technologies (USA) was approached by representatives of the NY State Department of Environmental Conservation looking to source readily portable (Backpack) ultrafine particle monitors.

DEC scientists were undertaking a detailed survey of air quality in the City of Albany's South End Community due to community concerns regarding the impact of the marine port, local industry and motor vehicle exhaust on air quality, and the potential impact on health.

The survey methods were to employ a broad range of instrumentation but a readily man portable, ultrafine particulate (UFP), monitor was required that could be readily carried by researchers in a backpack of instruments.

The selected portable monitors would also be located in fixed location mini stations throughout the community.

CH Technologies Supplied Equipment

After discussions with the DEC representatives, Swiss made Naneos Partector 2 instruments were supplied by CH Technologies to fulfill this role.

The Partector 2 is a hand-sized but powerful analytical instrument that can detect the presence of ultrafine nanoparticles and, in addition, define particle features such as the Lung Deposited Surface Area (LDSA), ultrafine particle mass concentration and mean particle size at high resolution.

Naneos Partector 2

Data captured by the instrument is recorded directly to either a memory card or computer.

The instrument can also be upgraded to the Pro version that additionally provides eight channels of particle size for ultrafine aerosols. Other version, such as the TEM, can deposit the ultrafine particles on a sample holder at the push of a button to permit subsequent analysis of individual particles by scanning electron microscopy.

Naneos Partector TEM with sample holder for TEM examination

Customer Outcome

Data generated by Partector 2 use during the study demonstrated that the primary source of UFPs is motor vehicle rather than directly with activities taking place in the port.

Other instrumentation measuring UFPs and a broad range of other pollutants confirmed that road activity was the principal source of inhaled environmental contaminants and led to a range of traffic flow changes to take truck activity away from the community, and enforcement checks on trucks with high emissions.

Other changes introduced included an increase in the frequency of leak detection inspections at the port to mitigate benzene vapor release.

While not identified as a significant source of air pollution by the study, railroad activity resulting in noise, ground vibration and safety concerns was also identified in the study report.

Benefits Provided by the Protector 2 Use in This Study

Although carried in backpacks in this study, the lightweight Naneos Partector 2 unit is hand sized and would easily fit in a jacket or vest pocket, so allowed researchers to carry a powerful analytical tool for the determination of UFPs throughout the Albany South End Area.

CH TECHNOLOGIES (USA)

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For more information on this study visit
https://www.albanyny.gov/DocumentCenter/View/3529/2019---Albany-South-End-Community-Air-Quality-Study-PDF?bidId=