

## **ET-030**

### **Evaluation of An Automated Instrument to Measure Ambient Organic Air Toxics**

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#### **Abstract**

An important class of air pollutants is hazardous air pollutants (HAPs) or air toxics. At present there are 189 different pollutants classified as air toxics, many of which are organic compounds that are emitted by cars and industrial facilities. Measuring these compounds is a major challenge. The standard EPA-approved methods for measuring air toxics involve manually collecting canister or cartridge samples over a 24-hr period. These samples are then analyzed off-line and results are typically not available for many months after the sample period. There are many scientific and economic disadvantages with the standard techniques. The low time resolution of manual samples makes it difficult to assess the public health risk and to apportion these pollutants to their sources. Manual sampling is also very labor intensive. Therefore, an important need is the development of new automated, highly time resolved approaches for measuring air toxics.

With support from the Allegheny County Health Department we are developing an automated inlet for use on a commercial gas chromatograph mass spectrometer (GC/MS) to measure ambient air toxic concentrations. The performance goal for the new instrument is to measure ambient a suite of organic air toxics at levels less than 100 pptv with a time resolution of 20 minutes. With support from the Allegheny County Health Department and the EPA this instrument will be deployed to measure air toxic concentrations in the Neville Island area of Pittsburgh. This is a heavily industrialized part of Pittsburgh, and the residents in nearby neighborhoods frequently complain about odors and pollution levels. The proposed project builds on this effort by evaluating the performance of the new automated instrument, with EPA approved techniques including 24-hr integrated samples using SUMMA canisters (EPA Method TO-15) and an EPA approved UV-DOAS (ultra violet differential optical absorption spectroscopy) instrument.