

## Session Summary for Ana8

### Advances in the Analysis of Dioxin and Dioxin-Like Compounds

This session of invited presentations will focus on new methodologies for the analysis of dioxin and dioxin-like compounds. The session will feature presentations which describe improvements in analytical techniques such as GCxGC, the use of application-specific GC stationary phases, as well as other techniques which increase instrument throughput.

First, Eric Reiner will present on the needs for analytical methods for POP testing in environmental matrices. He will discuss the various techniques that are being investigated at the Ontario Ministry of the Environment which primarily involve GC-HRMS. He will also give a summary of other techniques which may promise an increase in sample throughput, and increase in analytical information, or a decrease in cost and complexity for these analyses.

Second, Frank Dorman will discuss the development of application-specific capillary GC columns that allow for an improvement in separation of dioxin and furan congeners. These low-bleed, high temperature columns allow for more accurate quantification through the minimization of possible coelutions. Data from GC-HRMS will be shown comparing the results of sample extracts analyzed on these new stationary phases as compared to the columns which are routinely used for these analyses.

Third, Jean-Francis Focant will present data on the development of an analytical method for measurement of halogenated compounds in human serum and milk utilizing GCxGC-TOFMS. The goal of this work was to determine the potential of lower-cost instrumentation for the replacement of expensive GC-HRMS while simultaneously allowing for the determination of additional compounds as compared to GC-HRMS.

Fourth, Jack Cochran will present the results of a method which was developed for analysis of the dioxin and furan congeners using GCxGC-TOFMS. This technique benefits from an increase in analytical information as a result of the full-scan data that are acquired. Values for the 2,3,7,8-substituted dioxins and furans from this method will be compared to those obtained by conventional GC-HRMS.

Finally, Jean-Francis Focant will present data on the separation of the 209 PCB congeners using GCxGC-TOFMS. Through the increase in peak capacity of GCxGC, it is possible to obtain an increase in the number of resolved congeners while also increasing the separation of target compounds from matrix.