

TENTATIVE TECHNICAL PROGRAM



SECOND SYMPOSIUM ON DETECTION LIMITS IN AIR QUALITY AND ENVIRONMENTAL MEASUREMENTS

Sponsored by ASTM Committee D22 on Air Quality in cooperation with Committee E11 on Quality and Statistics

October 19-21, 2022
Sheraton New Orleans Hotel
New Orleans, LA, USA

Symposium Chair: Michael Brisson
Savannah River National Laboratory
Aiken, SC, USA

Symposium Co-Chairs: Raul Dominguez
South Coast Air Quality Management
Chino Hills, CA, USA

Thomas Bzik
EMD Electronics
Allentown, PA, USA

ABOUT THE SYMPOSIUM

The concept of detection limits in environmental measurements can vary in meaning dependent on technology, application, or stakeholder community. Stakeholders in regulatory volatile organic compound (VOC) measurement can define MDL in a very different way than those interested in metals and metalloids or in counting methods such as asbestos or mold determinations. Even within the same environmental agency where offices are tasked with similar activities, the definition of detection limit may have a different meaning dependent on the office that defines the term. In addition, navigating the concept of detection limits confronts stakeholders with a cornucopia of interrelated and at times overlapping terms such as IDLs, LCMRLs, LDLs, LOQs, MDLs, PQLs, and RLs.

This symposium features an international collection of speakers and panelists from the United States, Canada, and Europe scheduled to provide 21 presentations and participate in two panel discussions on topics including detection limits terminology, pros, and cons of censoring data below laboratory reporting limits, innovative statistical concepts, applications in environmental and air quality measurements, and opportunities for development of consensus standards. Like the sister events held in 2016 and 2018, this symposium provides a forum to educate, discuss and debate the various aspects of detection limits applied to environmental and air quality measurements; to assess where we are today and how best to advance the science of measurement sensitivity and gain consensus for standardization.

WEDNESDAY, OCTOBER 19, 2022
(All times in U.S. Central Daylight Time)

1:00 PM **Opening Remarks**
Michael Brisson, Symposium Chair

SESSION 1: DETECTION LIMITS TERMS AND APPROACHES

Session Chair: Jack Puzak
Chair, ASTM Subcommittee D22.01
Raleigh, NC, USA

1:15 PM **Commonly Used Terms and Their Interrelationships**
Kenneth T. White, Consultive Services, Virginia Beach, VA, USA

1:40 PM **A Grab Bag of Approaches to Estimate Detection Limits**
Raymond Merrill, U.S. Environmental Protection Agency, Durham, NC, USA

2:05 PM **EPA's MDL Procedure – Then and Now (and How to Do It Now)**
Jack Bennett, Lawrence Livermore National Laboratory, Livermore, CA, USA

2:30 PM BREAK

3:00 PM **The Importance of Treating Near Detection and Below Detection Limit Data Consistently**
John Chandler, Toronto, ON, Canada

3:25 PM **Detection Limit Reliability**
Thomas Bzik, StatsOnTheGo, Inc., Macungie, PA, USA

3:50 PM **The Case for Controlling False Negatives in Air Quality Data**
Michael Brisson, Savannah River National Laboratory, Aiken, SC, USA

4:15 PM Closing Remarks
Symposium Co-Chairs

4:30 PM SYMPOSIUM ADJOURNS FOR THE DAY

THURSDAY, OCTOBER 20, 2022
(All times in U.S. Central Daylight Time)

SESSION 2: DETECTION LIMITS, CENSORED DATA, AND APPLICATIONS

Session Chair: Steven Verpaele

Belgian Center for Occupational Hygiene
Zwijnaarde, Belgium

- 8:30 AM **The Impact of Pervasive Chemical Backgrounds on False Positives, False Negatives, Blanks, and Detection Limits - Viewed from the Lens of PFAS**
Kurt Thaxton, GERSTEL, Linthicum, MD, USA
- 8:55 AM **The Joint Consequence of Detection Limit Censoring and Detection Limit Determination Uncertainty**
Thomas Bzik, EMD Electronics, Allentown, PA, USA
- 9:20 AM **Recordkeeping Practices for Analytical Data Below the Reporting and Detection Limit**
Polona Carson, Neptune and Company, Inc., Denver, CO, USA
- 9:45 AM BREAK
- 10:15 AM **Panel Discussion: Measurement Uncertainty versus Data Censoring**
Moderator: Raymond Merrill, U.S. Environmental Protection Agency, Durham, NC, USA
- 11:15 AM **New Maximum Entropy Method for Analysis of Data with Nondetects**
John H. Carson, Neptune and Company, Inc., Denver, CO, USA
- 11:40 AM LUNCH (on your own)

SESSION 3: APPLICATION-DEFINED DETECTION LIMITS

Session Chair: Dietmar Breuer

Institute for Occupational Safety and Health of the German Accident Insurance
Sankt Augustin, Germany

- 1:30 PM **On Detection Limits and Uncertainty of Gravimetric Analysis of Aerosol Collection Substrates**
Steven Verpaele, Belgian Center for Occupational Hygiene, Zwijnaarde, Belgium

- 1:55 PM **The Detection Limits of Asbestos Fibre Counting in Relation to Lowered Limit Values**
Markus Mattenklott, Institute for Occupational Safety and Health (IFA), DGUV, Sankt Augustin, Germany
- 2:20 PM **Background Levels of Asbestos Detected throughout the City of Houston, Fourth-Largest City in the United States**
Scott Ward, Eurofins J3 Resources, Inc., Houston, TX, USA
- 2:45 PM BREAK
- 3:15 PM **Limit of Detection and Limit of Quantification in Metal Dust Analysis via ICP-MS: Influence Factors and their Impact**
Cornelia Wippich, Institute for Occupational Safety and Health of the German Accident Insurance, Sankt Augustin, Germany
- 3:40 PM **A German Standard as a Useful Approach for the Determination of the Limit of Detection and Quantification**
Jana Dospil, Institute for Occupational Safety and Health of the German Accident Insurance, Sankt Augustin, Germany
- 4:05 PM **Setting Detection Limits to Support Your Decision**
Kelly Black, Neptune and Co., Inc., Denver, CO
- 4:30 PM **Radiochemistry Detection Limits in Tritium Vapor Samples at Los Alamos National Laboratory**
Corey White, Newport News Nuclear-BWXT (N3B), Los Alamos, NM, USA
- 4:55 PM Closing Remarks
Symposium Co-Chairs
- 5:00 PM SYMPOSIUM ADJOURNS FOR THE DAY

FRIDAY, OCTOBER 21, 2022
(All times in U.S. Central Daylight Time)

SESSION 4: APPLICATIONS AND STANDARDS DEVELOPMENT

Session Chair: Thomas Bzik

EMD Electronics, Allentown, PA, USA

8:30 AM **Trace to High: Learn How to Optimize Detection Limits for Trace Level While Managing Very Contaminated Samples and Extending Volatile Boiling Point Range to Benzo(g,h,i)Perylene in Air**
Lee Marotta, PerkinElmer, Norwalk, CT, USA

8:55 AM **Measuring the Limit of Detection for Electrochemical Gas Sensors**
Jim Robert Saffell, NosmoTech Ltd., Cambridge, UK

9:20 AM **The Proposed ASTM D22 Standard Practice on Detection Limits: Where Are We?**
Michael Brisson, Savannah River National Laboratory, Aiken, SC, USA

9:45 AM BREAK

10:15 AM **Panel Discussion: Role of Standards Development Organizations in Providing Clarity Around Detection Limits**
Moderator: Raul Dominguez, South Coast Air Quality Management, Chino Hills, CA, USA

11:15 AM **Closing Remarks: Where Do We Go from Here?**
Symposium Co-Chairs

11:40 AM SYMPOSIUM ADJOURNS