Research Roundup Sampling and Analysis 1 (AIHce EXP 2021 OnDemand)

Course Description:
Recorded at AIHce EXP 2021

A New Diffusive Sampler for Screening a Wider Variety of Environmental Contaminants at Lower Levels
We have developed a new air sampling device featuring six (6) separate samplers incorporated into a single Sampling Station that may be worn on the upper arm of a first responder, war fighter, or other active worker. Each of six (6) Samplers contained in this Sampling Station may be fitted with sampling media that can be analyzed by conventional solvent extraction or by thermal desorption analysis (TDA). The result is a new type of personal sampler than can be used in screening a large number of environmental contaminants at extremely low levels. Diffusive Samplers (Personal Monitoring Badges) have become popular by providing accurate personal sampling results in a cost-effective and convenient fashion. Because this new diffusive Sampling Station contains multiple samplers, it can use multiple sampling media during a single sampling event allowing analysis of a wider variety of contaminants. Further, since the sampler elements are capable of Thermal Desorption Analysis (which analyzes the entire collected sample), the limits of detection with this device can be are far lower than conventional air sampling using solvent extraction (where only a fraction of the collected sample can be analyzed).

Presenter/Author: Mr. Charles Manning, PhD, CIH, FAIHA, Assay Technology, Livermore, CA

Thermal Properties of Buckypaper Sorbent used in Newly Developed Volatile Organic Compound (VOC) Sampler
Exposure to Volatile Organic Compounds (VOCs) is one of the most common occupational risks. A new pre-analysis method, photothermal desorption (PTD) have been developed by our group which uses pulses of high-energy light to release analytes from carbonaceous sorbents of diffusive samplers. The method allows faster response and is prone for field work. In the years since PTD was first tested, self-supporting carbon nanotube sorbents (Buckypapers or BPs) have been reliably produced for use as a PTD compatible sampling material. However, further work is needed to fully explore the capabilities of PTD as a method for desorbing VOC samples. The work discussed in this presentation focuses on

characterizing the driving thermal phenomena behind PTD. The objectives of the presented work were three-fold: measure the thermal response (i.e. temperature change) of BPs during light irradiation, determine the best method for conducting said measurements, and determine the thermal conductivity (TC) of the material. In fulfilling these objectives, the collected data not only provide a foundation for future studies on the theoretical framework of PTD, but supply end users of the technique with valuable information pertaining to which VOCs are best suited for use with PTD, based on their ability to be successfully desorbed within the generated temperature range.

Presenter/Author: Dr Claudiu Lungu, University of Alabama at Birmingham (UAB), Birmingham, AL

Contact Hours:
1

Presentation Date:
05/24/2021
Session recordings are available for 90 days from purchase.

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2:00 p.m.–2:25 p.m.

Exhibitor Learning Pavilion by Assay Technology

Changing Times: Leveraging Personal Exposure Monitors & Information Tools

2:00 p.m.–3:00 p.m.

C1: Research Roundup Sampling and Analysis I

2:00 p.m.–2:30 p.m.

A New Diffusive Sampler for Screening a Wider Variety of Environmental Contaminants at Lower Levels. Charles Manning, Assay Technology

2:30 p.m.–3:00 p.m.

Thermal Properties of Buckypaper Sorbent used in Newly Developed Volatile Organic Compound (VOC) Sampler. Claudiu Lungu, University of Alabama at Birmingham.

C2: Research Roundup Safety I

2:00 p.m.–2:30 p.m.

Building A Safety Culture and Maintaining Employee Commitment to Safety. Joanna Wallace, Woodard & Curran.

2:30 p.m.–3:00 p.m.

Is Zero Accident Rate Achievable? Laurie deLaski, Emilcott.

C3: The Challenges of Using Real-Time Detection Systems, Part 3 — Case Studies of Continuous Hazard Monitoring Network Deployment and Interpretation

Moderator: Dina Siegel, Los Alamos National Laboratory. **Presenters:** Alexander Brown, Savannah River Remediation; Emanuele Cauda, National Institute for Occupational Safety and Health (NIOSH).

C4: The Navy's Safety Process for Entering Challenging Confined Spaces on Ships and in Shipyards

Moderator: Bonnie Lockhart, Ameren. **Presenters:** Jennifer Rous, Department of the Navy; Alison Keeney, PSNS&IMF; Laura Vaughn, US Navy.

C5: Powerful Leadership Skills That Often Get Overlooked

Moderator: Celia Booth, Booth McCaffery LLC. **Presenter:** Aileen Yankowski, SMS Solutions/The Brand of U.

C6: Laboratory Best Practices

Moderator: Garth Graham, AdvanSix Inc. **Presenters:** Diana Peroni, BioMarin Pharmaceuticals, Inc.; Angela Dartt, Washington University in St. Louis; Mahdi Fahim, NC State University.

C7: A Total Worker Health® Approach to Address Emerging OSH Needs in a Changing Workforce

Presenter: Jennifer Cavallari, UConn School of Medicine.

C8: The Crossroads of Science and Regulations in Glyphosate and Cancer

Moderator: Robert Strode, C&IH, Inc. **Presenter:** Andrey Korchevskiy, C&IH, Inc.

C9: Increased Ergonomic Issues in Office Workers Sent Home Due to the COVID-19 Pandemic

Presenters: Thomas Gerding; Megan Syck, University of Cincinnati.

2:30 p.m.–2:55 p.m.

H&W: Moving Mindfully at Work: Chair Yoga

2:30 p.m.–3:15 p.m.

AIHA Main Stage: Looking for That First Job or Internship? What You Need to Know

3:00 p.m.–3:25 p.m.

Education Pop-Up: Four Tips for Improving Change Management in Your Ergonomics Initiative

Presenter: Blake McGowan, VelocityEHS | Humantech.

Exhibitor Learning Pavilion by TSI Inc.

How Respirator Fit Testing Protects Essential Workforces

Sessions scheduled to be part of the OnDemand package are noted with this icon throughout the Final Program but are subject to change.