

**EMERGING WORKPLACE HAZARDS: Creating Adaptable
and Innovative Safety and Health Training**

May 2–4, 2023 / Indianapolis, Indiana



WORKSHOP SESSION SUMMARY

POST-CONFERENCE PROCEEDINGS

1. Session Title and Presenter's Contact Information:

Workshop number and title: 35, Advanced Chemical Risk Assessment and Analysis

Presenter (s) Name: Tommy Murdock

Presenter Organization: OAI and Self employed

Presenter Email: tomдимurdock@gmail.com

2. Workshop Summary:

The science officer is an important member of the responding resources at a hazardous material incident and must possess technical and analytical skills for the analysis of physical and chemical data, the ability to search the technical literature as well as be able to assess the interaction of hazardous materials with various containers.

Part 1 of Science Officer 2.0 class provides a thorough understanding of the 12 key physical and chemical properties of hazardous materials (The HazMat Dirty Dozen) through classroom demonstrations, hands-on experiments and videos of hazardous materials events.

The materials used for the construction of containers for shipping and storing hazardous materials are reviewed. The impact of hazardous materials on the container and the probability of container failure and the mode of container failure during thermal, mechanical and chemical stress events are analyzed using information from hazardous materials incidents and research studies. The correlation between the stress-induced changes in key physical and chemical properties of hazardous materials and the stages of the General Hazardous Materials Behavior Model is reinforced through demonstration and review of hazardous materials incidents. Students will work in teams on tabletop scenarios adapted from actual hazardous materials events to provide the IC with recommendations for PPE, Zones and Perimeters Delineation, Monitoring, Decontamination, Respiratory Protection, Site Safety Plan, Evacuation vs Shelter-in-Place, etc.

Part 2 of Science Officer 2.0 will include actual hazardous material scenarios where students will assess chemical hazards and risks using the APIE risk assessment model (Analyze, Plan, Implement and Evaluate) and suggest the appropriate tactical response to those hazards in compliance with advanced chemical risk assessment and analysis competency outlined in Chapter 38 of NFPA 470 (2022). The presentation will also include a review of the information required in Chapter 38 of NFPA 470 for a hazardous materials technician assigned to perform the advanced chemical risk assessment and analysis at a hazardous materials scene.

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3. Methods:

1. Presentation of a PowerPoint Program defined the role of the Science Officer and information required to understand physical and chemical properties to define the behavior and harms posed by chemical spills.
2. Participants were divided into groups of 2 or 3 and were provided with an example of a hazardous materials spill. Each group utilized the DOT ERG, NIOSH Pocket Guide, Safety Data Sheets, CAMEO Chemicals and WISER to complete the Advanced Chemical Risk Assessment and Analysis Document.
3. Each group reported to the class a summary of the information recorded in their incident by reviewing the completed Advanced Chemical Risk Assessment and Analysis Document.

4. Main Points/Key Points Raised from Participants:

1. Participants stated that the Advanced Chemical Risk Assessment and Analysis Document was a useful tool to record reference data analyzing the chemical involved in a hazardous materials spill.
2. Attendance at this workshop was only 5 or 6 students. Perhaps this topic was too advanced for this audience.

5. References:

1. Advanced Chemical Risk Assessment and Analysis Document
2. NIOSH Pocket Guide
3. CAMEO Chemicals
4. WISER
5. Safety Data Sheets

6. Workshop Handouts/Resources:

A copy of the Advanced Chemical Risk Assessment and Analysis Document was uploaded to the conference website prior to the conference. Participants were provided a digital copy as an email attachment for use in their jurisdiction.

NATIONAL TRAINERS' EXCHANGE

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