

## **Reactive Chemical Management for Laboratories & Pilot Plants**

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**PURPOSE:** Chemical reactivity hazards contribute to a significant number of incidents in laboratories and pilot plants. This workshop will provide participants with the knowledge and skill to screen processes for potential hazards, recognize when reactive hazards are present, and implement appropriate controls to reduce the risk of an incident associated with the hazards. Workshop attendees will review case studies of actual incidents and do screening examples in order to understand the screening and recognition process. Group discussions of control methods will allow participants to share their experiences and to evaluate methods for controlling reactivity risks.

### **AGENDA**

#### **Introductions**

- Instructor(s)
- Workshop Purpose & Schedule
- Handout Materials
- Participants
- OSHA Alliance

#### **CHEMICAL REACTIVITY HAZARD**

- Nature of the problem
- Definitions
- Energetics and Kinetics

#### **REACTIVITY SCREENING**

- Screening Flowsheet
- Sources of Information
- Screening Example: Organic Synthesis

#### **Break**

- Screening Example: Reflux - Distillation
- Screening Example: Incompatible Mixture
- Additional Sources of Information
- Differential Scanning Calorimetry –  
Thermogravimetric Analysis
- Oxygen Balance
- Screening Example: Lab Waste
- Use of NOAA Compatibility Worksheet

#### **REACTIVITY CONTROLS**

- Engineering
- Ventilation
- Cooling
- Construction

Administrative  
Process Scale  
Separation  
Design & Review  
Application of Control Principles to Examples  
Screening Example: Organic synthesis  
Screening Example: Reflux/Distillation  
Screening Example: Incompatibility

#### REACTIVITY MANAGEMENT

Reactivity Management System  
Key elements  
Reactivity Management Flowsheet  
Participant Discussion of Management Systems

#### SUMMARY

Review of Workshop Key Points  
Screening  
Recognition  
Control  
Management  
Participant Discussion of How to Proceed  
Participant Evaluation of Workshop