One Day Training Program on Chemical Hazard Assessment and The Prevention of Runaway Reactions

Date: Friday 5th May 2017 (09.00 - 17.00 hrs.)
Venue: The Orchid Hotels, 70/C Nehru Road, Vile Parle (E), Mumbai - 400 099.

The Global Experts in Explosion & Process Safety
Your partner for developing proficiency programs

www.dekrainsight.com www.chilworth.co.in

DEKRA Insight represents the collective expertise of our legacy businesses, each an institution in safety.
Chilworth Technology, now part of DEKRA Insight*, your global partner in bringing Process Safety Competence to your organisation

Our competence development programs are:

- Effective, with our Process Safety expertise honed to deliver the appropriate knowledge to the appropriate staff; establishing clear targets and skills to be developed with information applicable in day-to-day activities
- Impactful, accompanied by testing and managerial follow-up (before and end-of-course grade tests, communication of skills developed)*
- Globally Consistent, ensured through adherence to a global syllabus agreed by our facilitators in all locations
- Sustainable, refreshed regularly to top-up knowledge and proficiency

Our Solutions are:

- Custom made & focused on your own operational process
- Flexible (open/in-company)
- At your own pace (one-shot, quarterly, annual)
- Complemented by extra services (supplementary back-up training or refresher sessions)*

Our In-Company portfolio includes:

- Best Practices in PSM Programs
- Understanding Process Safety Hazards
- Hazard Identification and Risk Analysis
- Safeguards and Layers of Protection

For an informal discussion on our tailored In-Company solutions, please call 011 2613 6979 or email info-in@chilworthglobal.com

OUR TRAINING EXPERTISE:

- In-company, open training
- Multi level audience: engineers, scientists, managers, technicians, operators and board members
- Our trainers: highly experienced process safety practitioners in industry
  Senior experts in their fields, providing a high level of advice and able to answer professional questions from experience

* DEKRA Insight is the global leader in safety at work. We guide clients in transforming their organisational culture and their operational environment, enabling them to reduce expose to injuries, save lives, protect assets and achieve safer performance.
Dr. Swati Umbrajkar is a recognized specialist in the area of chemical reactivity and process safety including interpretation of test data from high-pressure DSC cell tests, adiabatic calorimetry (ARC and ADC) and reaction calorimetry (RC-1).

Her expertise encompasses all areas of chemical reaction hazards and flammability (dust, vapors and gases) including process scale-up, and process hazard assessment (PHA).

Dr. Swati is an outstanding speaker and effective communicator has delivered this program in many places in the USA as well as in countries in South America where she has won accolades for her program.

She is currently the Manager of the Chemical process Evaluation Group at Chilworth Technology USA.

**Course Design and Objectives**

This course will teach attendees how to identify the thermal and chemical reactivity hazards associated with a chemical process based on the principles of scale-up and development. Attendees will learn how to conduct risk analysis of reactive systems to ensure safety prior to process operations and how to interpret the results of preliminary screening tests through the use of chemical engineering concepts relating to safe plant operation. The course will discuss characterization of thermal runaway reaction through calorimetry methods and the latest techniques for process optimization.

**Who should attend**

The course will benefit attendees from a broad spectrum of backgrounds and job responsibilities including chemical engineers, process engineers/scientists, plant/process safety/risk managers, facilities managers and others who need to understand the risks and hazards that can lead to accidents, injuries, property damage and business interruptions to the plant.

**You will learn**

The course will teach attendees how to assess chemical reactivity through:

- Use of Chemical Engineering principles to study the potential runaway reactions for storage and reactor risk assessments
- Small-scale studies
- Performing risk analysis of chemical processes
- Development of inherently safer processes

Problem solving sessions are included throughout the course, and the course incorporates case study scenarios to illustrate and extend the material.

**Course Outline**

- Introduction
- How and Where Hazards Arise
  - Case Histories Involving Runaway Reactions and Current Legislation
- Chemical Reaction Hazard (CRH) Assessment Strategy
  - CRH vs. Process Life Cycle
- Fundamental Principles of Scale-up and Reaction Runaway
  - Vapor Pressure Effects
  - Heat of Reaction
  - PHI Factor
  - Adiabatic Temperature Rise
  - Reaction Rate
  - Reaction Kinetics
  - Kinetics of Heat Release/Loss
  - Heat Loss Considerations
  - Reactant Accumulation
- Small Scale Screening Tests
- Identification of Highly Energetic Materials
  - Strategy for Assessing Explosivity
  - Oxygen Balance
  - CHETAH Calculations
  - Testing for Explosive Properties
- Reaction Characterization Through Calorimetry
- Characterization of Thermal Runaway Reaction Through Adiabatic Calorimetry
  - Accelerating Rate Calorimetry
  - Adiabatic Dewar Calorimetry
  - Pressure Compensated Calorimetry
- Safety Measure Selection
  - Safe Process
  - Integrating Safety Considerations into Process Design

**Problem Solving Sessions**

- Video Presentation
- Q&A/Group Discussion
- Quiz
- Course Evaluation Feedback Form

You will need to bring a scientific calculator to this course.
Course fee can also be sent through RTGS/NEFT.
The details are as follows:
Beneficiary’s Name: Chilworth Technology Private Limited
Bank Name: ICICI Bank, New Delhi Branch
Swift Code: ICICINBBCTS
Bank A/c.No.: 000705018701
Account Type: CURRENT ACCOUNT
Address: 9A, Phelps Building, C.P., New Delhi - 110 001
Branch IFSC Code: ICIC0000007
(Applicable only for RTGS)

Cancellations:
All reservations in writing are subject to cancellation conditions. Written cancellations, received up to 5 working days before the course date will be fully refundable. Cancellation within 5 working days are not allowed, however, substitutions can be made. No refunds will be made for non-attendance. Substitutions may be made at any time up to the start of the course. Chilworth Technology reserves the right to modify or cancel the course up to 4 working days prior to the commencement date.

REGISTRATION FORM

Please book me for: Chemical Hazard Assessment and The Prevention of Runaway Reactions, 5th May 2017
Enclosed herewith Cheque / DD in favour of ‘Chilworth Technology Pvt. Ltd.’
for Rs. __________________________ Dated __________ Drawn on __________

Name of the Participant(s) Dr./Mr./ Ms.: __________________________
Designation/ Job Title: __________________________
Company Name: __________________________
Address: __________________________
Pin Code: __________ Country: __________________________
Mobile: __________ Email: __________________________
Signature: __________________________ Date: __________________________

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