



Safe Handling of Chemicals & Storage of Hazardous Material

Course Overview

The storage and handling of chemicals requires compliance with a complex array of regulations and the use of specialized technical facilities, operations and equipment to ensure safe and proper management. This course provides a practical method of assessing the properties of chemicals and tracks the legislative framework that surrounds the safe management of these materials.

This course also provides practical guidelines for identification, segregation and movement of chemicals, as well as methods for the evaluation of facilities and specialized equipment necessary for the safe and effective storage and transfer of hazardous chemicals.

Target Audience:

All site staff handling chemicals.

Material managers and facility operators who store or handle chemicals, Engineers with limited knowledge of chemicals and their properties, construction site managers, engineers and architects responsible for the design of facilities for hazardous materials management, personnel responsible for implementing training programs and methods for hazardous chemicals, managers wishing to ensure compliance with applicable legislation and a reduction of risk for hazardous chemicals management, and safety personnel plus other people whose position in the company requires them to acquire this knowledge

Course Objectives:

The course will provide expert advice aimed at reducing the potential hazards and either removing risks or minimizing the potential consequences in the event of an incident.

It will develop provide a practical guideline for the evaluation and general design of operations used for the safe and effective storage and handling of chemicals.

It will cover a range of industrial scenarios. These practical case studies and exercises will provide the participants with the necessary knowledge and guides for right and safe handling of chemicals in petroleum sites.

Training Methodology:

This training program is lecture-based and customized to the needs of the audience, providing meaningful experience for personnel that work in petroleum plants.

Daily sessions include formal presentation, prepared in the Power Point, and interspersed with directed

Discussion and case study.

In addition to formal lectures and discussions, the delegates will learn by active participation through the use of problem-solving exercises, group discussions, analysis of real-life case studies, and focused training videos.

All attendees receive a course manual as a reference.

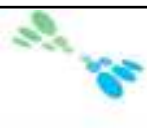
All attendees receive a software copy of the course manual on CD.

Additional materials can be distributed with more details covering the subjects of more interest for the participants.

Course Outlines:

- INTRODUCTION
- IDENTIFICATION, CLASSIFICATION AND PROPERTIES OF HAZARDOUS CHEMICALS
- ❖ Hazardous Chemicals Definitions
 - ✚ Health Hazard
 - ✚ Physical Hazard`
- Hazard Rating
- DOT/UN Hazard Classes
- Classification of Chemicals:
 - ✚ Methods of Classification
 - ✚ Solids, liquids, gases
 - ✚ Flammable & Explosive Chemicals
 - ✚ Inorganic and organic materials
 - ✚ Oxidants and reducing agents.
- Physical Properties of Chemicals
- Hazard Classification Systems
 - ✚ Fire Hazards
 - ✚ Toxicity Hazard
 - ✚ Corrosive Hazard
 - ✚ Chemical Reactivity Hazard
- EXPOSURE HAZARDS & HEALTH EFFECTS CHEMICALS
 - ✚ Overview
 - ✚ Routes of Entry
 - ✚ Acute Effects
 - ✚ Chronic Effects
 - ✚ Exposure Definitions, Limits & Calculations
 - ✚ Health Effects of Chemicals
 - ✚ Eyewash
 - ✚ Emergency Shower
 - ✚ Medical Consultation
- CHEMICAL & HAZARD LABELLING
 - ✚ Overview
 - ✚ Chemical Labeling
 - ✚ Hazard Identification System
 - ✚ Warning Systems



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- MATERIAL SAFETY DATA SHEET (MSDS)
 - ✚ Overview
 - ✚ MSDS Content
 - ✚ How to Read MSDSs and Understand Them.
 - ✚ Exercise-1: A group discussion of some MSDSs of Typical Chemicals used in ADMA.
 - ✚ Exercise-2: Selected participants will be required to read and explain for the others some MSDSs

 - REVIEW OF DAY 2 AND QUESTION/ ANSWER SESSION

 - STORAGE OF CHEMICALS
 - ✚ Overview
 - ✚ Chemicals Compatibility
 - ✚ Bulk Chemical Storage Facilities
 - ✚ Storage of Flammable & Explosive Chemicals

 - ✚ Storage of Compressed Gas & Cryogenics
 - ✚ Specialized Storage Requirements
 - ✚ Common Mistakes in Chemical Storage
 - ✚ Case Study

 - GENERAL RULES & PRECUATIONS OF CHEMICAL HANDLING
 - ✚ Overview
 - ✚ Work Practice Controls
 - ✚ Basic Chemical Handling
 - ✚ Handling of Compressed Gas
 - ✚ Working Alone
 - ✚ Standard Operating Procedures (SOP)
 - ✚ Fire Precautions
 - ✚ Warning Notices & Security
 - ✚ Good Housekeeping
 - ✚ Case Study: to show some common wrong actions & ask the participants to propose the correct safe procedures _ Group discussion.

 - PERSONAL PROTECTION
 - ✚ Personal Protective Equipment (PPE) and Clothing
 - ✚ Introduction
 - ✚ Selection Criteria
 - ✚ Equipment / PPE Use
 - ✚ TRANSPORTATION OF CHEMICALS
 - ✚ Overview
 - ✚ Legislative requirements
 - ✚ Labels, Marking and Placards for packages, trucks and large containers
 - ✚ Containers
 - ✚ Types
 - ✚ Basic Design and Main Properties
 - ✚ Inspection of Containers
 - ✚ Loading and Unloading
 - ✚ Compressed Gas Cylinder Transportation
 - ✚ Emergency Response

 - Case Histories of Hazardous Chemicals Mismanagement

➤ CHEMICAL WASTE DISPOSAL

- ✚ Hazardous Chemical Waste Disposal Policy
- ✚ Chemical Safety
- ✚ Chemical Waste
- ✚ Basic procedures
- ✚ Containers
- ✚ Container condition
- ✚ Container volumes & sizes
- ✚ Labeling of containers
- ✚ Disposal of empty containers
- ✚ Storage of waste chemicals
- ✚ Bulking or mixing of waste chemicals
- ✚ Overpacking or boxing up of multiple chemical containers
- ✚ Chemical removal request form
- ✚ Hazard identification
- ✚ Hazardous materials program



- ✚ Case Study

➤ IDENTIFICATION AND DEALING WITH UNKNOWN CHEMICALS

- ✚ Classification of Chemicals
- ✚ Unknown Chemical Identification Techniques
- ✚ Basic Precautions and Methods of Dealing with Unknown Chemicals

➤ CHEMICALS SPILL RESPONSE

- ✚ Chemical Spills
- ✚ Minor Chemical Spills
- ✚ Emergency Chemical Spills
- ✚ Spill of Solid, Liquid and Volatile Chemicals and Cleanup Procedures
- ✚ Leaking Compressed Gas Cylinders & Vessels
- ✚ Spill response equipment (contents, materials, compatibility, size, capacity, back-up, placement locations)
- ✚ Spill Contingency Plan
- ✚ Fires
- ✚ Fire Plan (requirements, reactions, explosions)
- ✚ Release of Toxic Gases
- ✚ Levels of Protection (Level A, B, C, D)
- ✚ Medical Emergencies
- ✚ General first aid and Personal protection during 1st aid
- ✚ Case Study & Group Exercise: Certain Chemical Spills (including Oil Spill)

➤ Site Emergencies/Contingency Plan

- ✚ Introduction
- ✚ Preparation
- ✚ Field Actions
 - Site and Work Preparation
 - Emergency Response Procedures
 - Evacuation



- Leadership During an Emergency

Certificate:

Cairo University Certificate, approved and recognized by international organizations

Who should attend?

All personnel involved in boiler and utilities plants

Course includes:

1. Hand out includes all hard and soft material of the course in nice gift
2. Transportations
3. Breakfast, coffee breaks, lunch in famous restaurants
4. Accommodations (can be discussed)

Instructors:

2 or three approved instructors for design, operations and maintenance

Training

The course will be conducted along workshop principles with formal lectures, case studies and interactive worked examples. Relevant case studies will be provided to illustrate the application of each tool in an operations environment. There will be ample opportunities for discussion and sharing experiences

Personal Impact

This course will give the delegate the required level of technical knowledge and skill to achieve that personal satisfaction.

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