

### Training Title

## STORAGE, HANDLING & SAFE USE OF CHEMICALS AND HAZARDOUS MATERIALS

### Training Duration

5 days

### Training Venue and Dates

REF	Storage, Handling and Safe Use of Chemicals and HS041 Hazardous Materials	5	04-08 Mar	\$4,250	Dubai, UAE
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In any of the 5 star hotel. Exact venue will be informed later.

### Training Fees

- 4,250 US\$ per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Buffet Lunch

### Training Certificate

Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

## TRAINING OVERVIEW

### INTRODUCTION:

Rapid industrialization in the 20<sup>th</sup> century has seen tremendous growth in the movement of Petroleum products and other flammable & Toxic Chemicals throughout the Globe. Besides , Liberalization, Privatization, and Globalization has wreaked another havoc in the form of environmental pollution, and safety & health hazards.

### DESCRIPTION

The storage and safe handling of chemicals and hazardous materials require 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 programmes 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

### TRAINING 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, interspersed with directed discussions 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 etc.

All attendees receive a course manual as a reference.

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

**AT THE END OF THE COURSE, THE DELEGATES WILL BE ABLE TO:**

- 1 Refer to the relevant regulations regarding chemical handling and hazardous material.
- 2 Determine the characteristic of a wide range of hazardous substances.
- 3 Minimize the risk of their hazardous potential being released.
- 4 Do basic design and layout for good storage and handling procedures.
- 5 Perform the safe operations involving bulk storage, transfer and handling.
- 6 Manage the incidents involving the release of hazardous substances.
- 7 Prepare and use the relevant procedures when dealing with chemical spillages.
- 8 Prepare the reports for submission to the relevant authorities.
- 9 Prepare and use the safe disposal procedures for unwanted substances

**COURSE OUTLINES:**

**DAY 1 :**

- INTRODUCTION
  - Relevance of ISO 14001 EMS, and OHSAS 18001
- IDENTIFICATION, CLASSIFICATION AND PROPERTIES OF HAZARDOUS CHEMICALS

- Hazardous Chemicals Definitions
  - Health Hazard
  - Physical Hazard
- Hazard Rating
- 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

## DAY 2:

### ➤ 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

### ➤ 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
- Exercise-2: Selected participants will be required to read and explain for the others some MSDSs

## DAY 3:

### ➤ 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 & PRECAUTIONS 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

### DAY 4:

➤ 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

### DAY 5:

- 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, fire fighting methods)
- Loss prevention procedures
- 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), The Response & The Cleanup Procedures
- Site Emergencies/Contingency Plan
- Introduction
- Preparation
- Field Actions
  - Site and Work Preparation
  - Emergency Response Procedures
  - Evacuation
  - Leadership During an Emergency

Case Studies, Discussion, Last Day Review & Assessments