TRAINING PROGRAM

Chemical Handling & Management

Introduction:

The 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 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, transfer and used of hazardous chemicals.

Who Should Attend?

The course is of interest for all Laboratory staff, Chemists and technicians, specially who work with chemicals management.

Methodology:

This interactive Training will be highly interactive, with opportunities to advance your opinions and ideas and will include;

- Lectures
- Workshop & Work Presentation
- Case Studies and Practical Exercise
- Videos and General Discussions

Certificate:

BTS attendance certificate will be issued to all attendees completing minimum of 80% of the total course duration

Course Objectives:

The course will provide guideline for evaluation and general design of operations used for the safe and effective storage and handling of chemicals include practical case studies and exercises with the necessary knowledge and guides for right and safe handling of chemicals in sites. At the end of the program, participants will understand:

- The characteristics of chemical hazards
- How to minimize the risk of their hazardous potential being released.
- Basic design and layout for good storage and handling procedures of chemicals.
- Safe operations involving bulk storage, transfer and handling of chemicals.
- How to deal with incidents involving the release of chemical.
- Procedures for dealing with spillages.
- Reporting requirements to relevant authorities.
- Safe disposal procedures for unwanted substances.

Course Outline:

- Introduction
- Sources of hazardous non-hazardous chemicals
- Chemicals characteristics: physical, chemical and biological.
- Identification, classification and properties of hazardous chemicals
- Hazardous chemicals definitions
    - ❖ Health Hazard
    - ❖ Physical Hazard
    - ❖ Chemical Hazard
- Classification of chemicals
    - ❖ 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
- Chemical & hazard labeling
    - ❖ Overview
    - ❖ Chemical labeling
    - ❖ Hazard identification system
    - ❖ Warning systems

- Safety Data Sheet (SDS)
    - ❖ Overview & Content SDS
    - ❖ How to read SDS and understand them.

Exercise 1: A group discussion of some SDSs of Typical Chemicals used

Exercise 2*:* Selected participants will be required to read and explain for the others some SDSs

- Storage Of Chemicals
  - ❖ Chemicals compatibility
  - ❖ Bulk chemical storage facilities
  - ❖ Storage of flammable & explosive chemicals
  - ❖ Storage of compressed Gas & Cryogenics
  - ❖ Specialized storage requirements
  - ❖ Common mistakes in chemical storage
- General rules & precautions of chemical handling
  - ❖ 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 participants to propose the correct safe procedures.

- Personal protection and clothing for chemical handling
- Transportation of Chemicals
- Labels, marking and placards for packages, trucks and large containers
- Collection different type of chemical waste
- Chemical waste disposal
  - ❖ Hazardous chemical waste disposal policy
  - ❖ Chemical safety
  - ❖ Basic procedures
  - ❖ Containers (condition, volumes & sizes, Labeling
  - ❖ Disposal of empty containers
  - ❖ Storage of waste chemicals
  - ❖ Bulking or mixing of waste chemicals
  - ❖ Over packing or boxing up of multiple chemical containers
  - ❖ Chemical removal request form
  - ❖ Hazard identification
  - ❖ Hazardous materials program

- Identification and dealing with unknown chemicals
  - ❖ Unknown chemical identification techniques
  - ❖ Basic precautions and methods of dealing with unknown chemicals
- Chemicals Spill Response
  - ❖ 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)
  - ❖ Spill contingency Plan
  - ❖ Fires & Fire Plan (requirements, reactions, explosions, firefighting 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
  - ❖ Site emergencies/contingency plan
  - ❖ Field actions, Site and work preparation
  - ❖ Emergency response procedures
  - ❖ Evacuation
- Wastes requiring special processing
  - ❖ Compressed gas containers
  - ❖ Water-reactive chemicals
  - ❖ Shock-sensitive compounds
  - ❖ Peroxide-forming chemicals
  - ❖ Unknowns
  - ❖ Explosive chemicals handling
- Recycling of chemical waste materials

Case Studies: about used and handling of chemicals will be available during the course