



COURSE OVERVIEW HE0609

**Hazard Communication Impact: Routes of Chemical Entry
(E-Learning Module)**

Course Title

Hazard Communication Impact: Routes of Chemical Entry (E-Learning Module)

Course Reference

HE0609

Course Format & Compatibility

SCORM 1.2. Compatible with IE11, MS-Edge, Google Chrome, Windows, Linux, Unix, Android, IOS, iPadOS, macOS, iPhone, iPad & HarmonyOS (Huawei)

Course Duration

30 online contact hours
(3.0 CEUs/30 PDHs)



Course Description



This E-learning course is designed to provide participants with a detailed and up-to-date overview of hazard communication impact during the routes of chemical entry. It covers the hazard communication and the 10 basic hazard communication requirements; the hazardous waste including the various types of chemicals; the three forms of chemicals; the three routes of entry, chemical toxicity, chronic toxicity and acute toxicity; the carcinogens, other groups of toxic chemicals, corrosive chemicals, protection from corrosives and flammable liquids; the properties of flammable liquids, vapor pressure, flash point, vapor density, hazards of metals, chemical hazard incidents and emergency response; and the various types of hazard, impact, incidents leading to the impact and process plant incidents.

Further, the course will also discuss the vapour cloud explosion, dust explosions and other explosions; the toxic gas escapes, acute exposure, toxic fumes from fires and chronic toxic exposure; the toxic liquid or gas release causing damage to the environment; the emergency response, risk management considerations, spill response and clean-up procedures; the emergency actions and immediate spill response; the chemicals on skin or clothing, chemicals in eyes, chemicals inhalation and accidental ingestion of chemicals; and the flammable materials, flammable and combustible liquids and store capacity specifications.



Moreover, the course will also cover the storage limitations for inside rooms and explosive limits; the hazards of flammable liquids, flammable and combustible liquids, minimum ignition energy and fire modelling; the safe handling of flammable and combustible liquids, safe storage practices and transferring of flammable liquids; the usage and disposal, flammable liquids properly, work practices handling flammable and combustible liquids; the common oxidizing agents; the fire triangle and classification of hazardous materials; and the safety data sheets, labels and warnings, globally harmonized system symbols, DOT hazard materials classes and hazard materials classes.

During this course, participants will learn the health hazards, flammability hazards, instability hazards, special hazards and storage; the transportation of compressed gases; the HazChem identification system, hazardous material code, risk significance and risk matrix; the risk management process flow chart, chemical hazard assessment & control and hazard and operability (HAZOP) analysis; the hazardous waste characterization; the waste generator responsibilities and waste handling requirements; the waste handling practices, disposal of empty containers and disposal of non-hazardous waste; and the environmental technologies, types of wastes, soil pollution control environment technologies and noise control environment technologies.

Course Objectives

After completing the course, the employee will:-

- Apply and gain an in-depth knowledge on hazard communication impact during the routes of chemical entry
- Discuss hazard communication and the 10 basic hazard communication requirements
- Recognize hazardous waste including the various types of chemicals and the three forms of chemicals
- Identify the three routes of entry and describe chemical toxicity, chronic toxicity and acute toxicity
- Determine carcinogens, other groups of toxic chemicals, corrosive chemicals, protection from corrosives and flammable liquids
- Recognize the properties of flammable liquids as well as vapor pressure, flash point, vapor density, hazards of metals, chemical hazard incidents and emergency response
- Identify the various types of hazard, types of impact, typical types of incidents leading to the impact and type of process plant incidents
- Avoid vapour cloud explosion, dust explosions and other explosions as well as describe toxic gas escapes, acute exposure, toxic fumes from fires and chronic toxic exposure
- Identify the toxic liquid or gas release causing damage to the environment
- Carryout emergency response, risk management considerations, spill response and clean-up procedures





- Employ emergency actions and immediate spill response as well as avoid chemicals on skin or clothing, chemicals in eyes, chemicals inhalation and accidental ingestion of chemicals
- Identify flammable materials, flammable and combustible liquids, store capacity specifications, storage limitations for inside rooms and explosive limits
- Recognize the hazards of flammable liquids, flammable and combustible liquids, minimum ignition energy and fire modelling
- Apply safe handling of flammable and combustible liquids, safe storage practices and transferring of flammable liquids
- Use and dispose flammable liquids properly as well as implement work practices handling flammable and combustible liquids
- Identify the common oxidizing agents, discuss the fire triangle and classify hazardous materials
- Review safety data sheets, labels and warnings, globally harmonized system symbols, DOT hazard materials classes and hazard materials classes
- Discuss health hazards, flammability hazards, instability hazards, special hazards and storage and transport of compressed gases
- Recognize HazChem identification system, hazardous material code, risk significance and risk matrix
- Illustrate risk management process flow chart, chemical hazard assessment & control and hazard and operability (HAZOP) analysis
- Characterize hazardous waste and identify the waste generator responsibilities and waste handling requirements
- Apply waste handling practices, disposal of empty containers and disposal of non-hazardous waste
- Recognize environmental technologies, types of wastes, soil pollution control environment technologies and noise control environment technologies

Who Should Attend

This course provides an overview of all significant aspects and considerations of hazard communication impact including the routes of chemical entry for those who are dealing with hazardous materials and chemicals in the workplace such as managers, engineers and other technical staff. This course is also suitable for health, safety and environmental (HSE) personnel.


Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course.



Certificate Accreditations

Certificates are accredited by the following international accreditation organizations:-


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USA International Association for Continuing Education and Training (IACET)

Haward Technology is an Authorized Training Provider by the International Association for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, Virginia 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 1-2013 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 1-2013 Standard**.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units (CEUs)** in accordance with the rules & regulations of the International Association for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

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British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council for Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

Course Fee

As per proposal



Training Methodology

This Trainee-centered course includes the following training methodologies:-

- Talking presentation Slides (ppt with audio)
- Simulation & Animation
- Exercises
- Videos
- Case Studies
- Gamification (learning through games)
- Quizzes, Pre-test & Post-test

Every section/module of the course ends up with a Quiz which must be passed by the trainee in order to move to the next section/module. A Post-test at the end of the course must be passed in order to get the online accredited certificate.

Course Contents

- Hazard Communication
- 10 Basic Hazard Communication Requirements
- Hazardous Waste
- Types of Chemicals
- The Three Forms of Chemicals
- Solid, Liquid, Gas
- Solids - Dusts
- Solids – Fumes and Fibers
- Liquids
- Liquids (Mists)
- Gases and Vapors
- How Chemicals Enter the Body?
- There Are Three Routes of Entry
- Chemical Toxicity
- Toxicity: how poisonous are chemicals?
- Chronic Toxicity and Acute Toxicity
- Carcinogens
- Other Groups of Toxic Chemicals
- Corrosive Chemicals





- Corrosive Chemicals - Skin
- Corrosive Chemicals – Inhalation and Eyes
- Protection from Corrosives
- Flammable Liquids
- Properties of Flammable Liquids
- Vapor Pressure
- Flash Point
- Flammable Limits Example
- Vapor Density
- Metals
- Hazards of Metals
- Protecting Yourself
- Chemical Hazard Incidents & Emergency Response
- Types of Hazard
- Types of Impact
- Typical Types of Incidents Leading to the Impact
- Type of Process Plant Incidents
- BLEVE's or Fireballs
- Flash Fires
- Vapour Cloud Explosion
- Dust Explosions
- Other Explosions
- Toxic Gas Escapes
- Acute Exposure
- Toxic Fumes from Fires
- Chronic Toxic Exposure
- Toxic Liquid or Gas Release Causing Damage to the Environment
- Emergency Response
- Risk management considerations
- Spill Response and Clean-up Procedures
- Emergency Actions
- Immediate Spill Response





- Chemicals on Skin or Clothing
- Chemicals in Eyes
- Chemicals Inhalation
- Accidental Ingestion of Chemicals
- Flammable Materials
- Flammable and Combustible Liquids
- Flammable and Combustible Liquids Classes
- Flammable Liquids Storage Cabinets
- Store Capacity Specifications
- Storage Limitations for Inside Rooms
- Flammable Liquids in the Plant
- Explosive Limits
- Lower and Upper Explosive Levels (LEL/UEL)
- Hazards of Flammable Liquids
- Flammable and Combustible Liquids
- Fires
- Minimum Ignition Energy
- Ignition-Easy to find!
- Fire Modelling
- Flammable and Combustible Liquids Grounding
- Safe Handling of Flammable and Combustible Liquids
- Flammable and Combustible Liquids
- Storage (Small Quantities)
- Safe Storage Practices
- Transferring of Flammable Liquids
- Use and Disposal of Flammable Liquids
- Work Practices Handling Flammable and Combustible Liquids
- Oxidizing and Reducing Agents
- Common Oxidizing Agents
- Oxidizing and Reducing Agents Heat & Shock Sensitive Compounds (Explosives)
- Oxidizing and Reducing Agents Peroxide Formers
- Examples of Redox Reactions





- Why Redox Qualification
- The Fire Triangle
- Why Redox Qualification
- Classification of Hazardous Materials
- HAZMAT Awareness
- What is a Hazardous Material?
- Safety Data Sheets
- Safety Data Sheet: The “Official” 16 Headings
- Safety Data Sheet (Material Safety Data Sheet)
- Safety Data Sheet Sheets- Minimum Information
- Labels and Warnings
- NFPA 704 Labelling System
- Exceptions to Employer Labelling
- GHS (Globally Harmonized System) Symbols
- GHS Pictogram
- DOT Hazard Materials Classes
- Hazard Materials Classes
- Exposure & Absorption
- Emergency Response Guidebook
- NFPA 704 Hazard Identification System
- Introduction to Section 704 Hazard Identification System of the National Fire Protection Association
- Introduction
- Health Hazards
- Flammability Hazards
- Instability Hazards
- Special Hazards
- DOT and HAZCHEM Identification Systems
- Hazard Class: DOT System
- Class 1: Explosives
- Class 2: Gases
- Class 3: Flammable Liquids





- Flammability
- Storage and Transport of Compresses Gases
- Class 4: Flammable Solids
- Class 5: Oxidizers and Organic Peroxides
- Class 6: Poisonous and Infectious Materials
- Class 7: Radioactive Materials
- Class 8: Corrosive Materials
- Class 9: Miscellaneous Hazardous Materials
- Hazchem Identification System
- Hazardous Material Code
- Hazard Identification & Control
- HHM: Hierarchical Holographic Modelling (Risk Filtering)
- Risk Significance
- Risk Matrix
- Using the Risk Matrix
- Hazard Definition
- Risk Management Process Flow Chart
- Chemical Hazard Assessment & Control
- Hazard and Operability (HAZOP) Analysis
- P&ID's – Sample
- Polymer Mixing Plant at Marmul G Station
- Hazard and Operability (HAZOP) Analysis
- HAZOP-Steps
- Hazardous Waste
- Environment–Hazardous Waste
- Training Objectives
- What is a Hazardous Waste?
- Characteristic of Hazardous Waste
- Waste Generator Responsibilities
- Waste Handling Requirements
- Waste Handling Practices
- Disposal of Empty Containers





- Disposal of Non-Hazardous Waste
- Environmental Technologies
- Introduction Environment Technologies
- Waste Management Environment Technologies
- Types of Wastes
- Selecting Technology
- Air Pollution Control
- Environment Technologies
- Background
- Equipment
- Techniques
- Factors
- Environmental Technologies (Green/Clean Solutions)
- Wastewater Control Environment Technologies
- Contents
- Background
- Primary Treatment
- Secondary Treatment
- Neutralization
- Tertiary Treatment
- Soil Pollution Control Environment Technologies
- Soil Pollution Control
- Contents
- Background
- Techniques
- Noise Control Environment Technologies
- Noise Control
- Contents
- Background

