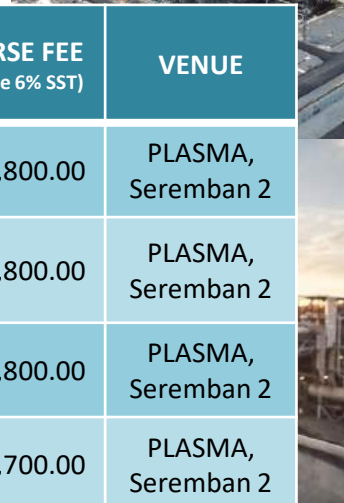




THE ENVIRONMENTAL SPECIALIST WITH MS ISO 9001:2015 & ISO 14001:2015 CERTIFICATIONS.



Organized by: Airwastewater Management Sdn. Bhd. (200701021637)

# COURSES ON PROCESS SAFETY

Airwastewater Management Sdn Bhd are presenting Courses on Process Safety which are available for public and in-house. For introduction, we are offering four (4) courses for public and other courses are available upon request.

## What is Meant by Process Safety?

Process safety is about understanding hazards and risk, managing risk by providing the appropriate layers of protection to reduce the frequency and severity of incidents, and learning from incidents when they happen. It involves: Identification and understanding of potential hazards.

Process Safety Management is **designed to manage the integrity of operating systems and processes handling hazardous substances by applying good design principles, engineering, and operating practices.**

## Public Courses:

NO.	TOPICS	DURATION (DAYS)	COURSE DATE	COURSE FEE (exclude 6% SST)	VENUE
1	Safe Operations Training: Hazardous Chemicals – Hydrogen Sulfide, The Silent Killer	2	23 – 24 Feb 2023 27 – 28 Jul 2023	RM 1,800.00	PLASMA, Seremban 2
2	Safe Operations Training: Hazardous Chemicals – Laboratory Safety Training on Mercury, Sulfuric Acid and Caustic Soda	2	09 – 10 Mar 2023 17 – 18 Aug 2023	RM 1,800.00	PLASMA, Seremban 2
3	Process Safety: Hazard Identification (HAZID) Training Course	2	25 – 26 May 2023 19 – 20 Oct 2023	RM 1,800.00	PLASMA, Seremban 2
4	Process Safety Management: Fundamentals for Engineers & Supervisors	3	21 – 23 June 2023 22 – 24 Nov 2023	RM 2,700.00	PLASMA, Seremban 2

## Other Courses Available:

NO.	TOPICS	DURATION (DAYS)
1	CIMAH Regulations 1996 2-days Training by Major Hazards Competent Person	2
2	Management of Change	2
3	Process Hazard Analysis (PHA) & Hazard Operability Study (HAZOP) Leaders Course	2
4	Safety in Process Engineering Design Course	3



**Safety First**

**Be aware Take care**

Airwastewater Management Sdn Bhd (200701021637)  
 No. 154, Jalan S2 B5, Seremban 2, 70300 Seremban, Negeri Sembilan DK.  
 Tel: 06-6013126 Fax: 06-6017127  
 HP: 011-53303881/882  
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## Meet Our Trainer:

**Khairuddin B Mohd Piah**  
**CEng, MICHemE**  
**TTT 4952**

Khairuddin Mohd Piah is presently one of the trainers of Airwastewater Management Sdn Bhd for *Pusat Latihan* OSH (PLOSH). He has more than 40 substantial years of experience in technical and operating oil refining and chemicals business in ExxonMobil and PETRONAS. As a Chartered Engineer and a Member of the Institution of Chemical Engineers UK, his skills and expertise are in process safety management, operational excellence improvement, behavioral safety (RCA & Causal Factors) and he is also a DOSH-registered CIMAH Regulations Competent Person (OKMH 171).

He has conducted multiple training courses in Health, Safety and Environment (HSE) such as:

- ✓ OIMS Assessment for Assessors
- ✓ Safety in Process Design
- ✓ Operating Procedures
- ✓ Process Safety Aspects
- ✓ Felt Leadership Workshops
- ✓ Process Safety Leadership Workshops
- ✓ IChemE Fundamentals of Process Safety
- ✓ Process Safety Management Training
- ✓ PHA/HAZOP Training

Other experiences:

- Oil Products Delivery Fleet Management
- Management-Union CA Negotiator
- Coach and Mentor for Operational Excellence
- Technical Papers Presentations at Forums, Seminars
- Technical and Safety Competency Assessments
- RAMS and Hazards AP Symposium Technical Paper Presentation



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Website: [www.awwam.com](http://www.awwam.com)





# Safe Operations Training: Hazardous Chemicals – Hydrogen Sulfide, The Silent Killer

Hazardous chemicals pose safety and health risks to employees in the workplace. They are termed as hazardous either because they are toxic, flammable, highly reactive or explosive.

Hydrogen Sulphide ( $H_2S$ ) is a hazard to both human health and equipment integrity. Inhalation of  $H_2S$  at high concentrations can kill humans instantly. It is a neurotoxin which when inhaled attacks the central nervous system causing the exposed person to stop breathing. Wet  $H_2S$  is highly corrosive and attacks most metals and therefore is a threat to equipment integrity.

The source of  $H_2S$  is sour crude oil which contains sulphur. In the process of refining the crude oil which typically involves removal of the sulphur,  $H_2S$  gas is produced. It exists almost everywhere in a refinery process unit, chemical processing and gas plants where sulphur is present. The only difference is whether it is in high or low concentrations. In non-processing facilities such as public utility systems,  $H_2S$  may be present in sewer or sewage systems.

This training is delivered by a professional chemical engineer with vast experience in the oil and chemical industry. Participants will learn through lectures, inter-active discussions, simple case studies and quizzes.

## Learning Outcomes:

- ✓ Understand what hazardous chemicals are
- ✓ Understand the properties of Hydrogen Sulphide
- ✓ Understand the health and safety risks of Hydrogen Sulphide
- ✓ Understand sources of Hydrogen Sulphide in the oil and gas industry
- ✓ Understand exposure limits of Hydrogen Sulphide
- ✓ Understand and able to apply concepts of Hydrogen Sulphide Management
- ✓ Understand and able to apply concepts of emergency response for Hydrogen Sulphide

## Methodologies:

- Lecture
- Professional coaching & guidance
- Group discussions
- Question & answer sessions
- Group problem-solving

**Course Fee : RM 1,800.00/pax (exclude SST 6%)**

**Course Date : 23 – 24 Feb 2023,  
27 – 28 Jul 2023**

**Venue : PLASMA, Seremban 2**

## Course Content:

### DAY 1

- Introduction :
  - Definitions of Hazardous Chemicals/Materials
  - Malaysian Laws & Regulations on Hazardous Chemicals
- Hazards Recognition & Identification Tools
- Hazards & Effects Register
- $H_2S$  Fatality Statistics & Incidents

### DAY 2

- Hydrogen Sulphide ( $H_2S$ )
  - ✓ Properties of  $H_2S$
  - ✓ Hazards of  $H_2S$
  - ✓ Exposure limits of  $H_2S$
  - ✓ Sources of  $H_2S$
- $H_2S$  Management - Controls and Procedures
- Identification & Demarcation of  $H_2S$  Areas
- Initial & Refresher Training on  $H_2S$
- Emergency Response Plan
- Case Study :  $H_2S$  Release Incident

## Who Should Attend:

- Managers, Supervisors and Operators, Safety Personnel
- Engineers and Early-career Professionals
- HR and anyone who would like to develop an understanding of hazardous materials





# Safe Operations Training: Hazardous Chemicals – Laboratory Safety Training on Mercury, Sulfuric Acid and Caustic Soda

Course Fee : RM 1,800.00/pax (exclude SST 6%)  
Course Date : 09 – 10 Mar 2023,  
17 – 18 Aug 2023  
Venue : PLASMA, Seremban 2

Hazardous chemicals pose safety and health risks to employees in the workplace. They are termed as hazardous either because they are toxic, flammable, highly reactive or explosive.

**Mercury** is a liquid metal which is hazardous to human health and equipment integrity. Inhalation of mercury vapor can harm human nervous, digestive and immune systems, lungs and kidneys and may result in fatality. Mercury cause severe corrosion, stress cracking, metal embrittlement, catalyst poisoning etc. leading to catastrophic failure of the equipment and the plant machinery. The use of Mercury in laboratory amounts in well-ventilated areas is generally safe. However, a spill of mercury in the lab has to be handled properly to avoid long-term health effects. Mercury is a known CARCINOGEN.

**Sulfuric Acid** is a clear, colorless to brown, odorless liquid. It is used in making storage batteries, fertilizers, paper products, textiles, explosives, pharmaceuticals and in steel and iron production. It is a strong oxidising agent and commonly used in laboratory testing methods. It is corrosive, and inhalation of Sulfuric Acid vapors can irritate and damage the lungs. Sulfuric acid is a CARCINOGEN.

**Caustic Soda (Sodium Hydroxide)** is a clear, odorless liquid commonly used in detergents and cleaning chemicals. It is alkaline, corrosive and causes severe skin burns and eye damage on contact. It is an acid neutralizer and commonly used in lab testing methods and procedures

This 1-day training is delivered by a professional chemical engineer with vast experience in oil and chemical industry. Participants will learn through lectures, inter-active discussions and indoor spills and emergency simulations.

## Learning Outcomes:

- ✓ Understand what hazardous chemicals are
- ✓ Understand the properties of Mercury, Sulfuric Acid and Caustic
- ✓ Understand the health and safety risks of Mercury, Sulfuric Acid & Caustic in the lab
- ✓ Understand concepts of First Aid for Mercury, Sulfuric Acid and Caustic exposure
- ✓ Understand concepts of Emergency Response for the 3 chemicals

## Methodologies:

- Lecture
- Professional coaching & guidance
- Group discussions
- Question & answer sessions
- Group problem-solving

## Course Content:

### DAY 1

- Introduction:
  - Definitions of Hazardous Chemicals/Materials
  - Malaysian Laws & Regulations on Hazardous Chemicals
- Hazards Recognition & Identification Tools
- Hazards & Effects Register
- Laboratory Safety Principles & Procedures

### DAY 2

- Mercury (Hg)
  - Properties of Hg
  - Hazards of Hg
  - Exposure limits of Hg
  - Sources of Hg
- Sulfuric Acid ( $H_2SO_4$ )
  - Properties of  $H_2SO_4$
  - Hazards of  $H_2SO_4$
- Caustic Soda (NaOH)
  - Properties of NaOH
  - Hazards of NaOH
- Emergency Response Plan
- First Aid Treatment
- Safe Storage

## Who Should Attend:

- Laboratory Managers, Supervisors and Technicians, Safety Personnel
- Engineers and Early-career Professionals
- HR and anyone who would like to develop an understanding of hazardous materials



Contact Us

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Website: www.awwam.com







# Process Safety Hazard Identification (HAZID) Training Course

Hazard identification (HAZID) is fundamental to the safe design and operation of any process plant or system. HAZID is a technique for early identification of potential hazards and threats in any given process. Knowledge and sound application of HAZID techniques will help you prevent and protect against the effects of process safety incidents.

HAZID requires a systematic and methodical approach to ensure all risks are recognized, prioritized and managed.

This course will provide you with the knowledge and skills to help you plan and execute a HAZID study and write up a HAZID report. You will explore a range of hazard identification techniques, their advantages, limitations and when to apply them.

This training is delivered by a professional chemical engineer with vast experience in oil and chemical industry. Participants will learn through lectures, inter-active discussions, simple case studies and quizzes.

## Learning Outcomes:

By the end of this course, you will understand:

- ✓ What process hazards and risk mean
- ✓ What HAZID tools are used for each stage of a project cycle
- ✓ How to conduct a HAZID workshop
- ✓ How to prepare a HAZID report

## Who Should Attend:

- Process Safety Engineers, Managers, Supervisors and Operators, Safety Personnel
- Environmental Engineers and professionals
- Engineers and Early-career Professionals

## Methodologies:

- Lecture
- Professional coaching & guidance
- Group discussions
- Question & answer sessions
- Group problem-solving

**Course Fee : RM 1,800.00/pax (exclude SST 6%)**

**Course Date : 25 – 26 May 2023,  
19 – 20 Oct 2023**

**Venue : PLASMA, Seremban 2**

## Course Content:

### Day 1

- Process hazards and safety incidents
- Hazard identification through the process life-cycle
- HAZID Team Structure and Roles of Members
- Concept and preliminary Hazard Analysis (HAZID)

### Day 2

- Inherent Safety
- HAZID Tools
- HAZID Report



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# Process Safety Management – Fundamentals for Engineers & Supervisors



Incidents such as the Flixborough plant explosion (1974), the Bhopal uncontrolled gas release (1984), Piper Alpha offshore platform explosion (1988), Exxon Valdez tanker oil spill (1989), Texas City Refinery explosion (2005) and Buncefield Terminal tank vapor cloud explosion (2006) were attributed to failures in the management of process safety. These incidents have had significant impacts on major hazards industries' approaches to modern process safety.

This course draws upon the concepts and principles of managing process safety advocated by the Center for Chemical Process Safety (CCPS) and the Institution of Chemical Engineers Safety Center (ISC). It will provide delegates an understanding of the Fundamentals of Process Safety. Delivered by a professional competent trainer with vast experience in oil and chemical industry, you will learn through lectures, inter-active discussions, simple case studies and quizzes.

## Learning Outcomes:

- ✓ Understand what is process safety
- ✓ Understand the consequences of poor process safety management
- ✓ Understand the process safety hazards associated with the site's operations and how the risks can be controlled
- ✓ Identify hazards and take corrective action
- ✓ Understand the value of safety auditing and how to oversee them
- ✓ Understand and implement change within your facility
- ✓ Understand and apply the use of process safety metrics in measuring performance
- ✓ Understand the importance of contractor management
- ✓ Understand the ways in which your safety depends on the knowledge of others and the need for overall safety competencies
- ✓ Understand your role as a process safety leader and how to execute your role effectively

## Methodologies:

- Lecture
- Professional coaching & guidance
- Group discussions
- Question & answer sessions
- Group problem-solving

**Course Fee : RM 2,700.00/pax (exclude SST 6%)**

**Course Date : 21 – 23 June 2023,  
22 – 24 Nov 2023**

**Venue : PLASMA, Seremban 2**

## Who Should Attend:

- Managers, Supervisors and Operators, Safety Personnel
- Engineers and Early-career Professionals
- Environmental Engineers and professionals
- HR and anyone who would like to develop an understanding of process safety



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# Course Content:

## Day 1:

1. Define Process Safety
  - The term "Process Safety" originated from Bhopal incident in 1985. Since then various authorities like CCPS, HSE Executive, ISC have been established each with their definitions and process safety models
  - Models commonly described around Loss of Containment and dealing with Hazardous Materials
  - Differentiation from traditional Occupational Safety
2. The Importance of Process Safety
  - Learn what happens when Process Safety is not well understood resulting in major losses, business interruptions and even winding up
  - Understand the principle of Probability and Consequences and how organizations can Learn from Incidents
3. Process Safety Management System
  - Learn about PSM systems as professed by OSHA, CCPS, UK HSE, Seveso, ISC
  - Learn about Bow Tie concept and analysis through short videos and case studies
4. Hazard and Risk
  - Hazards and Risk are key factors in managing Process Safety. Learn how these are defined with simple Illustrations and exercises on performing risk assessments and application of risk management tools
  - Understand what Flash point is, BLEVEs, VCEs,
5. Hazard identification and evaluation
  - There are various methods and tools in hazard identification and evaluation such as JSA, HAZOPS, FMEA, FTA. Learn when and how to use these tools

## Day 2:

1. Risk Assessment & Risk Assessment Matrix
  - Learn how to assess risks and to prioritize (decision making) using Risk Assessment Matrix
  - Know and understand ALARP concept
2. Process Safety incident pathways
  - An incident occurs when there is an initiating cause, contributing cause(s) resulting in undesired consequences
  - Swiss Cheese Model
  - Bow Tie concept in preventing and mitigating incidents
3. Safety Critical Devices
  - What is a SCD; Definitions and Illustrations
  - Managing temporary disarmament of SCD
4. Bow Tie & Barrier Management
  - Case Studies and Exercises applying concept of Bow Tie Diagram and Barrier Management. Barriers can be soft barriers or hard barriers.
5. Learning from Incidents
  - Do exercises based on safety incidents videos
  - Organizations from CEO to shop floor staff need to have Mindset of being vulnerable to what can go wrong

## Day 3:

1. Management of Change
  - Definitions & Identifying changes. Changes can be procedural, facility (asset) or organizational (people). All changes need to be managed.
  - Assessing and evaluating change
  - Major Incidents caused by poor MOC
  - Change Life Cycle
2. Contractor Management
  - Understand the difference of Contractors vs Vendors and their risk exposure
  - Company's & Contractor's responsibilities in PSM
  - Training and enforcing Safe Work Practices
3. Process Safety Measurements (KPIs)
  - Leading & Lagging Indicators; how to measure process safety effectiveness
  - KPIs need defined Ownership & Accountability
  - KPIs become effective if there is Management Stewardship. Learn of simple ways to steward performance
4. Site self-audit/assessment
  - Management need to do Plant walkabouts together with workers to involve employees in hazards identification and resolution
  - Learn about Personal Action Plan as an effective tool for all employees to embrace process safety and make a personal commitment to it.



# CIMAH Regulations 1996 2-days Training by Major Hazards Competent Person

Major Hazards industries are required by law to submit a new or updated CIMAH Report to DOSH every 3 years in accordance to the requirements prescribed in the Occupational safety and Health (Control of Industrial Major Accident Hazards) Regulations 1996.

Major Hazard facilities owner shall seek the advice and consult with DOSH registered CIMAH Competent Persons (OKMH) in the preparation of the report. The OKMH upon satisfactory review on the contents and quality of the report in accordance to regulatory requirements and guidelines shall endorse the report before it is submitted to DOSH.

Additionally, an updated Emergency Response Plan of the Major Hazard facility is to be submitted together with the CIMAH Industrial Safety Report. This ERP is also required to be reviewed and signed off by the Competent Person.

The Facility Owner, usually the Plant Head or GM/CEO, has overall responsibility and accountability of the CIMAH Report and ERP. He is accountable for the implementation of the systems, procedures and arrangements described in the report.

## Objectives:

- ✓ Understand requirements and expectations of the CIMAH Regulations 1996
- ✓ Understand and recognize the major hazards associated with client facility and manufacturing process
- ✓ Understand client facility process description and risks
- ✓ Understand the HSE and process safety management systems to manage the facility risks identified
- ✓ Understand the concepts of risk calculations and risk assessments
- ✓ Understand the facility Emergency Response Plan
- ✓ Understand the work process for preparing CIMAH Industrial Safety Report
- ✓ Identify gaps and improvements required, if any, for existing CIMAH report and ERP

## Who Should Attend:

- HSE Manager, Safety Personnel and Process Safety Engineers
- HR and/or Legal personnel
- Facility Head

## Course Content:

### Day 1

- DOSH Regulations & Acts - OSHA, CIMAH, FMD Act, COMAH, Seveso Doctrine
- Contents of CIMAH Industrial Activity Report
- Accountability & Responsibility of CIMAH Report Owner
- Process Flow for CIMAH Report Preparation

### Day 2

- ALARP Concept in CIMAH Report
- Review and Understand Requirements of Part D of CIMAH Report
- Top 5 MAH Events at Site, ETA, FTA, Bow Tie
  - ✓ ERP review for CIMAH Report
  - ✓ Gaps assessment and Opportunity for Improvement

## Methodologies:

- Lecture
- Professional coaching & guidance
- Group discussions
- Question & answer sessions
- Group problem-solving







# Management of Change

Poor management of change is a significant factor in many major accidents. Every change we make alters the balance of risks. Even for a change with apparent good safety benefits will likely introduce new hazards which warrants consideration for new risks associated with it. An effective Management of Change system will ensure that the risks from existing hazards are not increased and that existing controls are adequate or need to be revised. MoC provides a structured and documented system to control, authorize and record changes.

Change is a given in any industrial operation today. Some possible reasons for change would be:

- New laws and regulations
- Keeping up to date with current technology
- Producing more efficiently to remain competitive

Whenever a change is made, large or small, permanent or temporary, managers and staff should assess the possible impact of the change.

This training is delivered by a professional trainer (Chemical Engineer) with vast experience in oil and chemical industry. Participants will learn through lectures, inter-active discussions, simple case studies and quizzes.

## Learning Outcomes:

- ✓ Understand what is management of change
- ✓ Understand concepts and principles of identifying changes
- ✓ Understand concepts and principles of assessing & controlling hazards, and preventing unexpected outcomes.
- ✓ Understand what is a MoC system and how to set it up
- ✓ Understand what is organizational change and how it can impact safety performance
- ✓ Understand key success factors for an effective MoC system

## Who Should Attend:

- Managers, Supervisors and Operators, Safety Personnel
- Engineers and Early-career Professionals
- Environmental Engineers and professionals
- HR and anyone who would like to develop an understanding of MoC

## Course Content:

### Day 1

- What is Change; Engineering, Procedural, Organizational
- What Can Go Wrong if Change is Not Managed Properly
- Change Must Be Documented
- Risk Assessment of Change

### Day 2

- Organizational Change
- Mergers, Acquisitions, Divestments
- Administration & Controls of Change
- Implementation & Follow Up

## Methodologies:

- Lecture
- Professional coaching & guidance
- Group discussions
- Question & answer sessions
- Group problem-solving





# PHA/HAZOP Leaders Course

Process Hazard Analysis (PHA) and Hazard Operability Study (HAZOP) are systematic, structured analysis of a system, process or operations, carried out by a multi-disciplinary team. PHA is a term used broadly to cover the whole spectrum of hazard analysis and HAZOP is a specific hazard analysis tool which is part of the bigger PHA.

HAZOP study is one of the most widely used hazard identification methods within the oil and chemical industries. The techniques was developed in the late 1960s by ICI and has become widely used after the Chemical Industries Association issued it as a guide. The composition and quality of the team is one of the most important factors in determining the outcome of the study. Therefore the team leader has to be experienced in HAZOP studies and methodology and able to guide the team members through a thorough analysis of the hazards, potential causes and consequences that are identified. The leader must have sufficient technical knowledge to understand the discussion and to be able to judge when it becomes superficial or trivial.

This course provides delegates an understanding of the PHA and HAZOP process and methodology as well as the key elements of effective leadership roles and team dynamics required to achieve a good outcome of the PHA/HAZOP studies. The course is delivered by a professional trainer who comes with vast experience in oil and chemical industry and he has led several HAZOP studies during his career. You will learn through lectures, interactive discussions, simple case studies and quizzes.

## Learning Outcomes:

- ✓ Understand why process safety is critical in chemical industry
- ✓ Understand PHA - process hazard, tools and risk management
- ✓ Understand HAZOP methodology, approach and objectives
- ✓ Understand team dynamics and leader's role
- ✓ Understand and able to lead HAZOP study
- ✓ Understand and able to prepare HAZOP study report

## Who Should Attend:

- HAZOP study leaders - Managers, Supervisors and Operators, Safety Personnel
- Engineers and Early-career Professionals
- HR and anyone who would like to develop an understanding of PHA and HAZOP

## Methodologies:

- Lecture
- Professional coaching & guidance
- Group discussions
- Question & answer sessions
- Group problem-solving







# PHA/HAZOP Leaders Course

## Course Content:

### Day 1:

1. Importance of PHA & HAZOP in Process Safety Management
  - CCPS, HSE Executive, ISC
  - Loss of Containment
  - Hazardous Materials
2. Intro to PHA
  - Concept and Approach
  - Safety standards - corporate, national and global criteria
  - Various PHA stages
3. Intro to HAZOP
  - History of methodology
  - Concept and Approach
  - HAZOP Benefits and Applications
  - Common challenges and pitfalls
4. Case Studies

### Day 2:

1. Hazard Identification Methodologies
  - Definitions and Illustrations on P&IDs, Nodes, Guidewords
  - Cause and Consequences
  - Safeguards and Barriers
  - ALARP Considerations
  - Worksheets and Report Writing
2. Risk Assessment and RA Matrix
3. HAZOP Team Composition, Roles and Team Dynamics
  - Role of Team Leader
  - Role of Scribe
  - Role of Team Members
  - Trivial or Credible
  - Facilitation and Moderation
  - No issues left unresolved -all must agree
4. HAZOP Study Cycles & Frequency
  - Follow up closure roles and responsibilities
  - Management ownership and stewardship
  - HAZOP study cycle and frequency
  - Re-HAZOP, Delta HAZOP





# Safety in Process Engineering Design Course

Incidents in the Oil, Petrochemical and Oleo-chemical industries are caused by a combination of several factors such as human errors, procedural errors, equipment malfunction and engineering design flaws. These incidents may result in losses such as personnel injuries/fatalities, asset damage, environmental impacts and company reputation.

This course aims to provide attendees with sound knowledge on key principles and methods of good engineering design for process plants to ensure safe operations and avoid incidents and business interruptions. It takes into account the whole life cycle of the process plant.

Comprehensive course content provides attendees with process equipment knowledge and information focused on the design of new equipment. It also addresses concepts of technical safety and to understand plant operational issues. You will learn plant troubleshooting and problem solving.

Delivered by a professional process engineer and competent trainer with vast experience in oil and chemical industry, you will learn through lectures, inter-active discussions, simple case studies and quizzes.

## Learning Outcomes:

- ✓ Understand what is technical safety
- ✓ Understand the consequences of poor engineering design
- ✓ Understand failure modes of piping systems due to inadequate design
- ✓ Understand pressure relief and over pressure protection
- ✓ Understand the safety function of protective devices
- ✓ Acquire working knowledge of practical design
- ✓ Understand how to recognize and deal with safety & operability problems

## Who Should Attend:

- ❑ Process Engineers/Designers and early career professionals
- ❑ Managers and operational support groups
- ❑ Anyone who is involved in design, construction, inspection, operation or maintenance

## Methodologies:

- Lecture
- Professional coaching & guidance
- Group discussions
- Question & answer sessions
- Group problem-solving



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Website: [www.awwam.com](http://www.awwam.com)







# Course Content:

## Day 1

- **Introductions, Course Expectations & Definitions**
  - Safety Incidents in Industry with Process Design implications
  - Plant and project life cycles
  - Technical Safety vs Occupational Safety
- **Mechanical Design Aspects**
  - Design Definitions & Case Studies
  - Design Codes
- **Relief Scenarios**
  - Pressure Relief and protection
  - Pressure Relief selection
  - Atmospheric discharge & vent systems
  - Relief Prevention & Minimization
  - Relief Mitigation Systems
  - Case studies

## Day 2

- **Relief Scenarios (cont'd)**
  - Pressure Relieving devices & Assemblies
  - Relief (Flare) Systems
  - Case Studies
- **Safety Instrumented Systems**
  - Failure modes
  - Instrumented safety systems
  - Emergency shutdown systems
  - Alarm management
  - Case Studies
- **Fire Safety**
  - Ingredients for a Fire
  - Auto-ignition
  - Fire Prevention / Minimization
  - Fire Protection (Passive, Active)
  - Fire Fighting
  - Metal Strength Aspects in Fires
- **Piping Systems**
  - Piping classes, spec. breaks
  - Flanges, orifice plates and small-bore piping
  - Heat tracing
  - Specific start-up and shutdown piping
  - Routing and protection
  - Materials
  - Tubing vs. Piping

## Valve Types and Applications

- Manually-operated valves
- Remote-operated valves
- Non-return valves
- Control valves and assemblies
- Emergency shut-down & depress. Valves
- Relief valves
- Special applications

## Day 3

- **Material Aspects & Corrosion**
  - Overview of Construction Materials
  - Mats. & Corrosion Aspects - 1
  - Metallurgical Aspects
  - Types of Corrosion
- **General Process Facilities**
  - Equipment venting and draining
  - Drain systems
  - Flushing Oil Systems
  - Isolation Systems
  - Utility Systems
  - Heat Tracing and Jacketing
  - Equipment Spacing
- **Human Factors Engineering**
  - Principles and Concepts
  - Case Studies (safety incidents video)
- **Inherent Safety**
  - Principles & Concepts
  - Tools & Measures
- **Hazardous Area Classification**
  - What and Why HAC?
  - Principles and Concepts
  - Combustible Release and Ignition Control
  - Flammable atmospheres – Zones 0-1-2
  - Grades of Releases (vs. Zones)
  - Fluid Categories and Hazard Radii
- **Safety Reviews & Assessments**
  - HAZOP and/or Desk Safety Studies
  - Model Reviews
  - Prestart-up Safety Reviews
  - Fire Safety Reviews and QRA (new/exist. Plants)



**REGISTRATION FORM**

Please tick (/) the topics to register, fill-up the selected course date (refer to brochure) and other informations.

**REGISTRATION FEE**

Tick (/)	TOPICS	COURSE FEE (PER PAX)	SST (6%)	NET REGISTRATION
<input type="checkbox"/>	Safe Operations Training: Hazardous Chemicals – Hydrogen Sulfide, The Silent Killer (2 Days) <b>SBL Khas Serial No: 10001265227</b> Course Date (please fill-up) :	RM1,800.00	RM108.00	RM1,908.00
<input type="checkbox"/>	Safe Operations Training: Hazardous Chemicals – Laboratory Safety Training on Mercury, Sulfuric Acid and Caustic Soda (2 Days) <b>SBL Khas Serial No: 10001264259</b> Course Date (please fill-up) :	RM1,800.00	RM108.00	RM1,908.00
<input type="checkbox"/>	Process Safety: Hazard Identification (HAZID) Training Course (2 Days) <b>SBL Khas Serial No: 10001263863</b> Course Date (please fill-up) :	RM1,800.00	RM108.00	RM1,908.00
<input type="checkbox"/>	Process Safety Management – Fundamentals for Engineers & Supervisors (3 Days) <b>SBL Khas Serial No: 10001265231</b> Course Date (please fill-up) :	RM2,700.00	RM162.00	RM2,862.00

**PAYMENT METHOD**

<input type="checkbox"/> Cheque	Pay to : Airwastewater Management Sdn Bhd
<input type="checkbox"/> Interbank Giro/Online Banking	Bank : Affin Islamic Bank Berhad
<input type="checkbox"/> HRDC SBL-Khas	Bank Account No : 10-524-000486-8
	Swift Code : AIBBMYKL
	Company No : 779652-U
	Please send proof of payment to <a href="mailto:csd@awwam.com">csd@awwam.com</a> / <a href="mailto:finance@awwam.com">finance@awwam.com</a>

**APPLICANT'S INFORMATION**

Name :	NRIC :
Designation :	HP/Phone No :
Company Name :	E-Mail :

**BILLING DETAILS**

<input type="checkbox"/> Self-Sponsored	<input type="checkbox"/> Company Sponsored
Company Name :	
Mailing Address :	
Contact Person :	Company Stamp:
Designation :	
Phone No :	
E-Mail :	
Date :	Authorised Signature :

**TERMS & CONDITIONS**

- Fees are inclusive of course materials, meals and refreshments.
- Registration can be made by sending registration form via email to [csd@awwam.com](mailto:csd@awwam.com) or fax to 06-6017127.
- Payment shall be made within 14 days from the date of invoice or at latest 3 days before the course start; OR approved HRD Corp Grant shall be submitted to AWWAM within 14 days from the date of quotation or at latest before the course date.
- Registration of participants will be confirmed upon receipt of full payment OR approved HRD Corp Grant by issuance of confirmation letter by AWWAM.
- Certificate of attendance will be issued upon attendance and completion of the course; and (for SBL-Khas) upon receipt of the signed copy of HRD Corp JD14 form.
- Participant/PIC shall undertake to pay the course fee if payment/Grant claim issue arise for whatever reason within 7 days after completion of the course.
- You have read the terms and conditions above and by signing this form, you expressly agree and consent to the use, processing, disclosure and transfer of your personal data by AWWAM for this registration and future communications including marketing and promotion purpose. Should there be a need to retract your consent, you shall write a notice to AWWAM to cease the processing of the personal data.



2.6924° North, 101.9045° East

**OUR TRAINING VENUE:**

Pusat Latihan Alam Sekitar Malaysia (PLASMA)  
No. 55, Jalan S2 B18, Pusat Dagangan Seremban 2,  
70300 Seremban, Negeri Sembilan DK.  
(Opposite Mydin Mall & Dataran Centrio)

