

Design for Safe Handling of Industrial Chemicals



Unit Code: Part of CPE 6001

Industrial chemicals can be very dangerous. If you are responsible for chemicals in your workplace you need to fully understand the risks and hazards involved in your day-to-day operations. This module will provide you with the tools needed for safe and responsible handling of chemicals in an industrial environment.

Design techniques for the safe handling of industrial chemicals are studied in detail: explosions, runaway reactions, occupational health and environment protection.

Other topics include flammability, sources of ignition including static, inerting and explosion venting; assessment of runaway reaction hazards and pressure relief; occupational medicine, toxicology, epidemiology and the COSHH regulations; and environmental auditing.

Course Content

- **Sources of ignition** — combustion, flammability and methods of ignition.
- **Dust explosions** — dangers of dust explosions are explored, characteristics of dust
- **Electrostatic ignition** — how to minimise the risks
- **Overview of design for fire and explosions**
- **Safe handling of LPG**
- **Inerting and flammability diagrams**
- **Pressure relief systems and hardware**
- **Assessment and prevention of exothermic and runaway reactions**
- **Relief piping and disposal systems** — application and optimisation
- **Environmental protection management and auditing** — Environment Agency, DEFRA, COMAH and IPPC and how these affect industry
- **Environmental Harm Indices (EHI)** — how to monitor the severity of a major environmental accident
- **Environmental Risk Assessment (ERA)**
- **Occupational medicine, occupational exposure and biological monitoring**
- **Control of Substances Hazardous to Health (COSHH)**
- **Workplace exposure to biological agents**

