

CHEMICAL SAFETY

Understanding Chemicals

Physical Hazards of chemicals:

- Explosive**-When a sudden, almost instantaneous release of pressure and heat occurs due to a chemical being subjected to sudden shock, pressure or high temperature
- Flammable**-When a chemical catches fire easily
- Unstable**-A chemical reacts adversely when subjected to other chemicals, temperature changes, water or oil

Health Hazards of chemicals:

- Carcinogen**
- Corrosive** -can burn, destroy the eye or skin on contact such as acids
- Toxic**-can cause death. The damage depend on size of dose and exposure time
- Irritant**-causes a reversible inflammatory effect at the site of contact

Physical Hazards



Corrosive to metals



Flammable



Oxidising



Gas under pressure



Explosive

Health Hazards



Health hazard



Corrosive



Serious health hazard



Acute toxicity

Environmental Hazards



Hazardous to the environment

Control measures for chemicals hazardous to health

a) Good design and installation practice:

- *totally enclosed process and handling systems*
- *segregation of the hazardous process from the operators, or from other process*
- *sufficient general ventilation & local exhaust ventilation*

b) Work systems and practices:

- *reduction in the period of exposure of workers*
- *regular cleaning of contaminated walls, surface, etc*
- *use and proper maintenance of engineering control measures*

c) Personal Protections:

- *using suitable Personal Protective Equipment*
- *provision of adequate facilities for washing ,changing and storage of clothing, including arrangements for laundering contaminated clothing*

Safe Work Practices

- *Don't use a chemical unless you have been properly trained*
- *Report any spill immediately*
- *Properly dispose of "empty" containers*
- *Don't pour chemicals down the drain*
- *Limit the volume of volatile or flammable chemicals used*
- *Never mix chemicals unless you have an approved procedure*
- *Store chemicals in their original containers*
- *Always wear appropriate safety gear at work in a controlled environment*
- *Always dispose of chemicals properly*
- *Use care in handling contaminated glassware or needles*
- *Don't mouth pipette*
- *Don't eat, drink, smoke near chemicals*
- *Don't use unlabeled containers*

Safety Data Sheet(SDS)

A document prepared by the chemical manufacturer that describes the:

- ✓ Physical and chemical properties
- ✓ Physical and Health hazards
- ✓ Routes of exposure
- ✓ Precautions for safe handling and use
- ✓ Emergency and first-aid procedures
- ✓ Control measure

