

# 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

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### 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

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- *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)

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*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

