

## **Pollution control and safety**

### **Health and safety Factors**

The mononitrochlorobenzenes are very toxic substances which may be absorbed through the skin and lungs, giving rise to methemoglobin. Their toxicity is about the same as or greater than that of nitrobenzene. The para isomer is less toxic than the ortho isomer, and the maximum allowable concentration which has been adopted for p- nitrochloro- benzene is  $1 \text{ mg/m}^3$  (0.15ppm) The mononitrochlorobenzenes are moderate fire hazards when they are exposed to heat or flame. They are classified by the ICC as class-B poisons.

Chronic exposure can lead to spleen and liver damage, jaundice, and anemia. Alcohol ingestion tends to increase the toxic effects of mononitrochlorobenzene; thus, alcohol in any form should not be ingested by the victim of nitrochlorobenzene poisoning for several days after the nitrochlorobenzene poisoning or exposure. Impervious clothes should be worn in areas where risk of flash exists. Ordinary work clothes that have been splashed should be removed immediately, and the skin should be washed thoroughly with soap and warm water. In areas of high vapor concentration ( $>1 \text{ ppm}$ ), full facemasks with organic vapor canisters or air-supplied respirators should be used. Clean work clothing should be worn daily, and showering after each shift should be made mandatory.

### **Sulphuric acid**

It is injurious to the skin, and eyes. Dangerous quantities of hydrogen may develop in reactions between weakened acid and metals and containers should be carefully inspected and manufacturers recommendations for storage and unloading strictly followed. To prevent the accumulation of hydrogen in drums, they should be periodically vented. Workers handling Sulphuric acid should wear protective clothes. Also special care should be taken while dismantling lines and equipments to prevent the acid sprays

## **Chlorobenzene**

Toxicity of chlorobenzene is low to moderate. Absorption through the skin seems to be minimal, but has some local irritant potency. In experimental animals, chlorobenzene induce microsomal liver enzymes and cause porphiria, hypertrophy. And Centro lobular necrosis of the liver. The chlorobenzene can induce kidney damage and irritation of the upper respiratory tract, depending on the route and the time of administration and on the dose applied. For human beings chloroenezene produces unconsciousness, vascular paralysis, and heart failure in a child after accidental oral uptake.

## **Nitric acid**

Nitric acid vapors and fumes are highly toxic, and capable of producing severe injury and death if handled improperly. If acid contacts the skin, it should be washed with large quantities of water. If it is swallowed, the victim should drink large quantity of lukewarm, soapy water or milk