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1,1,1,-TRICHLOROETHANE

Source of Exposure

Trichloroethane is commonly used in commercial applications as a substitute for carbon tetrachloride. Its applications include use as a degreaser, dry cleaning agent, and as a solvent in paint products. Commercial mixtures usually contain various stabilizers or inhibitors in the form of ketones, alcohols, or esters. Exposure is generally through inhalation of vapors.

Symptoms

Trichloroethane also known as methylchloroform is a narcotic and acts on the central nervous system. Exposure can cause cardiac arrhythmias. Severe exposure may also result in pulmonary edema. Other symptoms of exposure are dermatitis, eye irritation, and renal damage.

Blood Concentrations

The general population has an average blood concentration of trichloroethane of 0.7 PPB. (EHS data) Current Threshold Limit Value for this chemical is 350,000 PPB in ambient air. Workers exposed to 250,000 PPB (air) for 30 minutes developed blood concentrations of 1400 PPB. Workers exposed to 500,000 PPB (air) developed average blood levels of 3500 PPB (Astrand et al., 1973).

Toxic Levels

Effects from trichloroethane have been noted when persons were exposed to air concentrations of 1,000,000 PPB. Corresponding serum levels for such exposure would be approximately 10,000 PPB (Stewart et al., 1961). Only a few deaths from trichloroethane have been reported in the literature. Individuals who have been sensitized may manifest negative health effects at concentrations well within the ranges considered safe for the average population

Metabolism

Trichloroethane is metabolized in man to trichloroethanol. It is then excreted as a glucuronide conjugate in urine. The half life for trichloroethane in whole blood is 10 - 12 hrs.

Summary

Classification:	Halogenated Hydrocarbons
Population Average:	0.7 PPB (whole blood)
Threshold Limit Value:	1,500 PPB (whole blood) 350,000 PPB (air)
Onset of Symptoms:	10,000 PPB (whole blood) 1,000,000 PPB (air)
Death:	Data not available
Half Life:	12 Hrs.
LD 50: (oral-rat)	10,330 mg/kg



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