

CONSEQUENCES OF EXPOSURE TO TOXIC AMOUNTS

TRICHLOROETHYLENE

FORM: Liquid.

EYE: Pain. Slight irritation.
Vapors irritating.

SKIN: Irritation, dry skin. Stiff or numb fingers.
Burn if held in contact with skin (ie. under gloves).

INHALATION: Vapors accumulate readily. May cause irritation of nose & throat, sleepiness, dizziness, drunkenness, irregular heartbeat, unconsciousness, death. High levels very dangerous. Drinking alcohol may increase effects.

ORGAN EFFECTS Nerve damage, central nervous system effects.
from repeated exposure: Liver, kidney effects in animals.

CARCINOGENICITY: Positive in mice only -- data of questionable relevance to humans.

BIRTH DEFECTS & REPRODUCTIVE EFFECTS:
Negative in animals.

MUTAGENICITY: Inconclusive in bacteria and animals.

EXPOSURE GUIDELINES: ACGIH TLV & OSHA PEL = 50 ppm TWA;
STEL = 200 ppm .

POTENTIAL HEALTH EFFECTS
Health & Environmental Sciences T.I.M.E. SYSTEM

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TRICHLOROETHYLENE

REPT H

LATEST REVISION: 08/06/87

CAS NUMBER: 0000079-01-6

SYNONYMS

ETHENE, TRICHLORO-

APPEARANCE: COLORLESS LIQUID

MAX AIRBORNE CONC: 9.78 %

ODOR DESCRIPTION: CHLOROFORM-LIKE, SWEET-THRESHOLD AT 100 PPM

WARNING PROPERTIES: The odor and irritancy of this material are inadequate to warn of excessive exposure.

EXPOSURE GUIDELINES:

Trichloroethylene: ACGIH TLV and OSHA PEL are 50 ppm TWA, 200 ppm STEL.

----- POTENTIAL HEALTH EFFECTS -----

This section includes possible adverse effects which could occur if this material is not handled in the recommended manner. These effects apply to stated material and may not apply to dilutions or formulations of that material.

EYE

- May cause pain.
- May cause slight eye irritation.
- Corneal injury is unlikely.
- Vapors may irritate eyes.

SKIN

- Prolonged or repeated exposure may cause skin irritation.
- May cause drying or flaking of skin.
- May cause more severe response if confined to skin.
- A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.
- The LD50 for skin absorption in rabbits is approx. 10,000 mg/kg.
- Trichloroethylene may be absorbed through skin to some degree increasing blood concentrations or causing numbness of fingers when they are immersed in it.

INGESTION

- Single dose oral toxicity is low.
- The oral LD50 for rats is 4920 mg/kg.
- Amounts ingested incidental to industrial handling are not likely to cause injury; however, ingestion of larger amounts could cause serious injury, even death.
- If aspirated (liquid enters the lung), may be rapidly absorbed through the lungs and result in injury to other body systems.

ACUTE INHALATION EFFECTS

- In confined or poorly ventilated areas, vapors can readily accumulate and can cause unconsciousness and death.
- Exc ssiv xposur may cause irritation to upper respiratory tract.

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- Excessive exposure may increase sensitivity to epinephrine and increase myocardial irritability (irregular heartbeats).
- Th LC50 for rats is 12,500 ppm for 4 hours.
- May cause alcohol intolerance often manifested by temporary reddening of the skin called 'degreaser's flush'.
- Minimal anesthetic or irritant effects may be seen around 200-400 ppm. Levels in the range of 1000-2000 ppm may rapidly cause dizziness or drunkenness.
- Progressively higher levels or longer exposure may cause unconsciousness and death and may be immediately hazardous to life.

SUBCHRONIC EFFECTS

- Alcohol consumed before or after exposure may increase adverse effects.
- Repeated exposure may cause central or possibly even peripheral nervous system effects; high levels have caused liver or kidney effects in laboratory animals.

CHRONIC EFFECTS / CARCINOGENICITY

- A positive carcinogenic response has occurred only in mice given large doses of trichloroethylene.
- Data suggest a nonmutagenic mechanism for tumor formation implying that nontoxic doses of trichloroethylene should pose little or no carcinogenic hazard for man.

TERATOGENIC EFFECTS

- Birth defects are unlikely. Exposures having no effect on the mother should have no effect on the fetus. Did not cause birth defects in animals; other effects were seen in the fetus only at doses which caused toxic effects to the mother.

REPRODUCTIVE EFFECTS

- In animal studies, has been shown not to interfere with reproduction.

MUTAGENICITY

- Results of in vitro ('test tube') mutagenicity tests have been inconclusive.
- Results of mutagenicity tests in animals have been inconclusive.
- Pure trichloroethylene (without additives) lacks mutagenic potential in most tests.