

EMS CATALOG NO: 13250
EMS PRODUCT: Ethylene Dichloride
DATE: 07/08/2007
PAGE NUMBER: One of 7

MATERIAL SAFETY DATA SHEET

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof.

Electron Microscopy Sciences assumes no responsibility for personal injury or property damage to vendees, users or third parties caused by the material. Such vendees or users assume all risks associated with the use of the material.

ELECTRON MICROSCOPY SCIENCES
1560 INDUSTRY ROAD
P.O. BOX 550
Hatfield PA 19440
(215) 412-8400

24 HOUR EMERGENCY PHONE NUMBER
CHEMTREC: (800) 424-9300

FOR PRODUCT AND SALES INFORMATION

CONTACT ELECTRON MICROSCOPY SCIENCES OFFICE ABOVE.

PRODUCT IDENTIFICATION

PRODUCT NAME: 1,2-Dichloroethane
SYNONYM: Ethylene dichloride
CAS NUMBER: 107-06-2
CHEMICAL FORMULA: C2H4CL2

COMPOSITION AND INFORMATION ON INGREDIENTS

COMPONENT: Ethylene Dichloride (1,2-Dichloroethane)
CAS #: 107-06-2
EXPOSURE LIMITS: TWA (mg/m3) CEIL (mg/m3) % by Weight
40 75 100

TOXICOLOGICAL DATA ON INGREDIENTS - 1,2-Dichloroethane:
ORAL (LD50): Acute: 670 mg/kg (Rat). 413 mg/kg (Mouse).
DERMAL (LD50): Acute: 2800 mg/kg (Rabbit).

VAPOR (LC50): Acute: 1000 ppm (Rat) (8 hour(s)).

HAZARDS IDENTIFICATION

POTENTIAL ACUTE HEALTH EFFECTS:

Extremely dangerous in case of ingestion. Very dangerous in case of eye contact (irritant), of inhalation. Slightly dangerous to dangerous in case of skin contact (irritant). Corrosive to skin and eyes on contact. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. This product is an eye irritant. Severe over-exposure can result in death. Can be fatal if inhaled or ingested. This product may irritate eyes and skin upon contact. Inflammation of the eye is characterized by redness, watering, and itching.

POTENTIAL CHRONIC HEALTH EFFECTS:

Very dangerous in case of ingestion, of inhalation. CARCINOGENIC EFFECTS: Classified 2 by NTP. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. The substance is toxic to lungs, the nervous system, liver, mucous membranes. Toxicity of the product to the reproductive system: Not available. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

FIRST AID MEASURES

EYE CONTACT:

Check for and remove any contact lenses. IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. COLD water may be used. DO NOT use an eye ointment. Seek medical attention.

SKIN CONTACT:

If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical touches the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

SERIOUS SKIN CONTACT: Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

INHALATION:

Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

SERIOUS INHALATION:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

INGESTION: DO NOT induce vomiting. Have conscious person drink several glasses of water or milk. Seek medical attention.

SERIOUS INGESTION:

DO NOT induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

FIRE AND EXPLOSION DATA

FLAMMABILITY OF THE PRODUCT: Flammable
AUTO-IGNITION TEMPERATURE: 413oC (775.4oF)
FLASH POINTS: Closed Cup: 13oC (55.4oF)
Open Cup: 18oC (64.4oF)
FLAMMABLE LIMITS: Lower: 6.2%
Upper: 15.6%
PRODUCTS OF COMBUSTION: These products are carbon oxides (CO, CO2).

FIRE HAZARDS IN PRESENCE OF VARIOUS SUBSTANCES:

Slightly flammable to flammable in presence of open flames and sparks. Very slightly to slightly flammable in presence of oxidizing materials.

EXPLOSION HAZARDS IN PRESENCE OF VARIOUS SUBSTANCES:

Risks of explosion of the product in presence of mechanical impact and static discharge: Not available.
Very slightly to slightly explosive in presence of oxidizing materials.

FIRE FIGHTING MEDIA AND INSTRUCTIONS:

Flammable liquid, soluble or dispersed in water.

SMALL FIRE: Use DRY chemicals, CO₂, alcohol foam or water spray.

LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

LARGE SPILL:

Flammable liquid. Corrosive liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT get water inside container. DO NOT touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Call for assistance on disposal.

HANDLING AND STORAGE

PRECAUTIONS:

Keep locked up. Keep container dry. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. DO NOT ingest. Do not breathe gas, fumes, vapor or spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

STORAGE:

Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8oC (100oF).

EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety

shower is proximal to the work-station location.

PERSONAL PROTECTION: Splash goggles. Full suit. Vapor respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Gloves (impervious) Boots. Wear appropriate respirator when ventilation is inadequate.

PERSONAL PROTECTION IN CASE OF A LARGE SPILL:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

EXPOSURE LIMITS: TWA: 10 CEIL: 75 (ppm) from ACGIH
TWA: 40 CEIL: 300 (mg/m3) from ACGIH

Consult local authorities for acceptable exposure limits.

PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE/APPEARANCE: Liquid
MOLECULAR WEIGHT: 98.96
pH (1% SOLN/WATER): Not available.
BOILING POINT: 83.5oC (182.3oF)
MELTING POINT: -35.3oC (-31.5oF)
SPECIFIC GRAVITY: 1.2351 (water=1)
VAPOR PRESSURE: 61 mm of Hg @ 20oC)
VAPOR DENSITY: 3.42 (air=1)
ODOR THRESHOLD: 26 ppm
WATER/OIL DIST. COEFF.: 0.033
DISPERSION PROPERTIES: See solubility in water, methanol, diethyl ether, n-octanol, acetone.
SOLUBILITY: Easily soluble in methanol, diethyl ether, n-octanol, acetone. Very slightly soluble in cold water.

STABILITY AND REACTIVITY DATA

STABILITY: The product is stable.
INCOMPATIBILITY WITH VARIOUS SUBSTANCES:
No specific information is available in our database regarding the reactivity of this material in presence of various other materials.
CORROSIVITY: Non-corrosive in presence of glass.

TOXICOLOGICAL INFORMATION

ROUTES OF ENTRY: Ingestion. Inhalation.

TOXICITY TO ANIMALS: WARNING! THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.

Acute oral toxicity (LD50): 413 mg/kg (Mouse).
Acute dermal toxicity (LD50): 2800 mg/kg (Rabbit).
Acute toxicity of the vapor (LC50): 1414 ppm (Rat).

CHRONIC EFFECTS ON HUMANS:

CARCINOGENIC EFFECTS: Classified + by OSHA/NIOSH. Classified 2B by IARC. Classified 2 by NTP.

The substance is toxic to lungs, the nervous system, liver, mucous membranes. Toxicity of the product to the reproductive system: Not available.

OTHER TOXIC EFFECTS ON HUMANS:

Extremely dangerous in case of ingestion.
Very dangerous in case of eye contact (irritant), of inhalation.
Slightly dangerous to dangerous in case of skin contact(irritant).

SPECIAL REMARKS ON CHRONIC EFFECTS ON HUMANS:

Passes through the placental barrier in animal. Excreted in maternal milk in human.

ECOLOGICAL INFORMATION

ECOTOXICITY: Not available.

PRODUCTS OF BIODEGRADATION: These products are carbon oxides (CO, CO2).

TOXICITY OF THE PRODUCTS OF BIODEGRADATION:
The products of degradation are more toxic.

DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Recycle to process, if possible.
Consult your local or regional authorities.

TRANSPORT INFORMATION

DOT CLASSIFICATION: DOT CLASS 3: Flammable liquid.

IDENTIFICATION: Ethylene Dichloride UN 1184 II

SPECIAL PROVISIONS FOR TRANSPORT: Marine pollutant

OTHER REGULATORY INFORMATION

FEDERAL AND STATE REGULATIONS:

1,2-Dichloroethane listed by the State of California [cancer]
" " " Massachusetts
" " " Pennsylvania
1,2-Dichloroethane listed by CERCLA and TSCA

WARNING: This product contains a chemical known to the State of California to cause cancer.

CHEMICAL INGREDIENT REQUIRING THIS WARNING: 1,2-Dichloroethane

OTHER REGULATIONS: OSHA-Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

OTHER CLASSIFICATIONS: WHMIS (Canada)

WHMIS CLASS B-2: Flammable liquid with a flash point lower than 37.8oC (100oF)

WHMIS CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).

WHMIS CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

WHMIS CLASS E: Corrosive liquid.

HMS (U.S.A.) Health Hazard = 3 Fire Hazard = 3 Reactivity = 0

PROTECTIVE EQUIPMENT:

Gloves (impervious)- full suit-splash goggles
Vapor respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.

]