

**Inter-Office
Correspondence**



To. C. M. Buerkle
L. L. Hammit
ALL AREA SALES OFFICES
ALL DISTRICT SALES OFFICES

Date February 17, 1986
From R. K. Lee
Location 36 West - G.O.
Subject Ethylene Dichloride MSDS
Mailing (1/20/86)

Attached is a recent communication sent to all PPG Ethylene Dichloride customers relaying the fact that Ethylene Dichloride has appeared in the National Toxicology Program's Third Annual Report on Carcinogens in the Group B listing-- a substance that may be reasonably considered to be a carcinogen. A copy of the recent Material Safety Data Sheet was also enclosed with this letter.

Please ensure that all key personnel involved with our customers are aware of this recent communication. Additional copies of the Material Safety Data Sheet may be obtained through Business Communications by filling out an Advertising Literature Request Form (A-0020).

If you have any further questions, please do not hesitate to call me.

A handwritten signature in cursive script that reads 'R. K. Lee' followed by a small flourish.

R. K. Lee

mec

Attachments

P.S. Copies of the distribution for each sales office is forthcoming.

SL 080114



PPG Industries, Inc. One PPG Place Pittsburgh, Pennsylvania 15272 (412) 434-2604

R. Kenneth Lee
Manager, Product Safety
Environmental Affairs
Chemicals

January 20, 1986

Dear Customer:

Re: Ethylene Dichloride

Enclosed is a revised Material Safety Data Sheet (MSDS) for Ethylene Dichloride. This compound appears in the National Toxicology Program's Third Annual Report on Carcinogens in Group B as a substance that may be reasonably considered to be a carcinogen. The distribution of the MSDS is part of our continuing program of providing safety and health information to all our customers.

PPG urges you, and it is your duty, to pass the enclosed warnings and information along to your employees, customers, handlers, or users of this product. The same principle applies to any product made by you from PPG products.

Even though PPG is furnishing this information to you, it is not necessarily all-encompassing; therefore, it is recommended that you should consult with knowledgeable people of your choice in order to determine whether your safety programs and warnings are adequate and/or in compliance with any applicable laws or regulations.

Should you require additional information, please contact your local PPG sales representative or the writer.

Yours very truly,

A handwritten signature in dark ink, appearing to read 'R. Kenneth Lee', is written over the typed name.

R. Kenneth Lee

mec

Enclosure

SL 080115

Material Safety Data Sheet

PPG Industries, Inc.
One PPG Place
Pittsburgh, PA 15272



Approved by U.S. Dept. of Labor as Essentially Similar to Form OSHA-20

Date: November, 1985	Edition: Eighth
Chemical Name and Synonyms: Ethylene Dichloride; 1,2 dichloroethane CAS No. 107-06-02	Trade Name and Synonyms: Ethylene Dichloride
Chemical Family: Chlorinated Hydrocarbons	Formula: CH ₂ ClCH ₂ Cl
DOT Shipping Name: Ethylene Dichloride 5000 lbs.	DOT Hazard Class: Flammable Liquid
Reportable Quantity: 2270 kg. I. D. Number: UN1184	Subsidiary Risk: N/A

SECTION 1 • PHYSICAL DATA

Boiling Point @ 760 mm Hg: 180°F	Vapor Density (Air=1): 3.4	Specific Gravity (H₂O=1): 20°/20°C = 1.255	pH of Solutions: ~7
Freezing/Melting Point: -35.3°C -32.6°F	Solubility (Weight % in Water): 0.869 g/100ml	Bulk Density: 10.3 lbs./gallon @ 25°C	Volume % Volatile: 100%
Vapor Pressure: @ 25°C = 87mmHg	Evaporation Rate (ethyl ether=1): .27	Heat of Solution: Unknown	Appearance and Odor: Colorless liquid; sweet chloroform odor

SECTION 2 • INGREDIENTS

	%
Ethylene Dichloride	100

SECTION 3 • FIRE AND EXPLOSION HAZARD DATA

Flash Point °F (Method Used) 56°F (13.3°C) Tag Closed Cup	Flammable Limits in Air (% by Volume) LEL: 6.2% UEL: 15.6%	Extinguishing Media: Dry chemicals, foam, or carbon dioxide
--	--	--

Special Fire Fighting Procedures: Fire fighters must wear NIOSH/MSHA-approved, self-contained breathing apparatus. Water spray should be used to keep fire exposed containers cool.

Unusual Fire and Explosion Hazards: Fires will form toxic and corrosive fumes of hydrogen chloride, and under some conditions may form trace quantities of phosgene. Reacts with oxidizing materials and bases. Hydrolyzes slowly at elevated temperatures to produce hydrogen chloride

SECTION 4 • HEALTH HAZARD DATA

Toxicity Data	Classification (Poison, Irritant, Etc.)
LC ₅₀ Inhalation See Section 5	Inhalation: Moderately Toxic
LD ₅₀ Dermal See Section 5	Skin: Moderately Toxic
Skin/Eye Irritation See Section 5	Skin/Eye: See Section 5
LD ₅₀ Ingestion See Section 5	Ingestion: Slightly Toxic
Fish, LC ₅₀ (Lethal Concentration) See Addendum	Aquatic: See Addendum

24-HOUR EMERGENCY ASSISTANCE: (304) 843-1300

SECTION 5 • EFFECTS OF OVEREXPOSURE

This section covers effects of overexposure for inhalation, eye/skin contact, ingestion and other types of overexposure information in the order of the most hazardous and the most likely route of overexposure.

Permissible Exposure Limits:

OSHA: 50 ppm (200mg/m³), 8-hour TWA (time-weighted average); Ceiling - 100 ppm;
Maximum Peak - 200 ppm (5 minutes in any three hours)--29CFR 1910.1000

ACGIH: 10 ppm, 8-hour TWA (time-weighted average); 15 ppm, STEL (short-term exposure limit)--any 15-minute excursion

PPG Internal Permissible Exposure Limit (IPEL): 5 ppm, 8-hour TWA (time-weighted average);
15 ppm, STEL (short-term exposure limit)--any 15-minute excursion

Toxicity Data

Acute Oral: LD₅₀ (rats) = 680 mg/kg¹, 2 oz. have been fatal in humans²

Acute Dermal: LD₅₀ (rabbits) = 2.8 g/kg¹

Acute Vapor Inhalation¹: Maximum time - concentrations in air survival by rats for a
single exposure were: 12 minutes @ 20,000 ppm
1 hour @ 3,000 ppm
7 hours @ 300 ppm

EFFECTS OF OVEREXPOSURE

ACUTE

General: Ethylene dichloride can be taken into the body by ingestion, inhalation or skin absorption. By any of these means it can be highly toxic. Acute poisoning may cause headache, dizziness, feelings of drunkenness, loss of consciousness, internal bleeding, and death. Repeated exposures can bring on nausea, vomiting, stomach pain, irritated mucous membranes, loss of appetite, liver and kidney failure and possible death. Numerous cases of ethylene dichloride poisoning, both fatal and nonfatal, have been documented by the National Institute for Occupational Safety and Health. With skin absorption or inhalation, the first effects are headache, weakness, eye irritation, cyanosis (blackening of skin) and nausea. Ethylene dichloride has been found in human milk and in the exhaled breath of nursing mothers who were exposed to the chemical.³

Odor Threshold: Barely detectable at 50 ppm in air, is definite but not unpleasant at 100 ppm.¹

Inhalation: May produce burning of the eyes, tears, and irritation to the throat.¹

Eye Contact: When splashed in eyes, local effects include pain, irritation and watering. No permanent injury if washed out promptly.¹

Skin Contact: Prolonged or repeated skin contact may result in local irritation and dermatitis, in addition to systemic effects from absorption, as outlined above.¹

CHRONIC

Chronic overexposure may cause liver and kidney damage.

The National Cancer Institute (NCI) reported the results of their carcinogenesis bioassay study of ethylene dichloride in rats and mice by oral administration. Results indicated a statistically significant increase of cancer in the test animals, versus the controls.

(Continued on attached addendum)

EMERGENCY AND FIRST AID PROCEDURES:

Inhalation: Remove patient to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

Eye or Skin Contact: Immediately flush eyes and skin with water (soap and water for skin) for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing and shoes before reuse or discard.

Ingestion: If conscious, drink large quantities of water. DO NOT induce vomiting. Take immediately to a hospital or physician. If unconscious, or in convulsions, take immediately to a hospital. DO NOT attempt to induce vomiting or give anything by mouth to an unconscious person.

Notes to Physician (Including Antidotes): NEVER administer adrenalin for swallowing or inhalation overexposure. Increased sensitivity of the heart to adrenalin may be caused by overexposure to ethylene dichloride. Saline cathartics should be considered following high dose ingestion. Overexposures may cause vomiting and protracted retching via CNS mechanisms.

SECTION 6 . REACTIVITY DATA

Stability: Stable	Conditions to Avoid: Flames, intense heat sources, electric arcs.
Hazardous Polymerization: Will not occur	Conditions to Avoid: Will corrode aluminum at elevated temperatures

Incompatibility (Materials to Avoid): Reacts with oxidizing materials³ and bases or water at elevated temperatures.

Hazardous Decomposition Products: Decomposes upon contact with flame, hot surfaces or electric arcs emitting toxic fumes of hydrogen chloride and possible traces of phosgene.

SECTION 7 . SPILL OR LEAK PROCEDURES

Steps to be Taken if Material is Spilled or Released: Evacuate area, provide maximum ventilation, and remove all sources of ignition. Only personnel equipped with NIOSH/MSHA-approved, self-contained breathing apparatus or full facepiece airline respirators with auxiliary SCBAs operated in the pressure-demand mode should be permitted in area. Dike area to contain spill and pump spilled material into metal containers for disposal or reclaiming. Recover any remaining material on adsorbents, such as sawdust or vermiculite, and place in metal containers for disposal. After all visible traces and all vapors have been removed, thoroughly wet vacuum the area of spill. If area of spill is porous, remove as much contaminated earth, gravel, etc. as necessary and place in closed containers for disposal.

Waste Disposal Method: Contaminated sawdust, vermiculite, or porous surface must be disposed of in a permitted hazardous waste management facility. Recovered liquids may be reprocessed or incinerated or must be treated in a permitted hazardous waste management facility. Care must be taken when using or disposing of chemical materials and/or their containers to prevent environmental contamination. It is your duty to dispose of the chemical materials and/or their containers in accordance with the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, as well as any other relevant federal, state, or local laws/regulations regarding disposal.

RCRA - Hazardous Waste Number U-077
Clean Water Act - RQ - 5000 Pounds

SECTION 8 - SPECIAL PROTECTION INFORMATION

Respiratory Protection:

Use NIOSH/MSHA-approved organic respirator or use air-supplied respiratory protection when concentrations exceed the permissible exposure limits. See Section 7 for respiratory protection in the event of spills or leaks. The respirator use limitations made by NIOSH/MSHA or the manufacturer must be observed. Respiratory protection programs must be in accordance with 29CFR 1910.134.

Ventilation (Type):

Use general or local exhaust ventilation sufficient to limit employee exposure to ethylene dichloride below permissible limit.

Eye Protection:

Splashproof chemical safety goggles

Gloves:

Polyvinyl alcohol, Viton®. For limited use only: Butyl rubber.

Other Protective Equipment:

Boots, aprons, or chemical suits should be used when necessary to prevent skin contact. Personal protective clothing and use of equipment must be in accordance with 29CFR 1910.133 and 29CFR 1910.132.

SECTION 9 - SPECIAL PRECAUTIONS

Precautions to be Taken During Handling and Storing:

- Container and system must be electrically grounded before unloading.
- Do not use in poorly ventilated or confined areas.
- Adequate ventilation must be maintained in storage areas to reduce fire hazard in the event of a leak.
- Ethylene dichloride vapors are heavier than air and will collect in low areas.
- Avoid contact with flames, hot surfaces or electric arcs. May form toxic and corrosive fumes.
- Store only in closed, properly labeled containers.
- Keep away from heat, sparks, or flame. Ethylene dichloride vapors are flammable and may be explosive.
- AVOID CONTAMINATION WITH WATER SUPPLIES. Handling, storage and use procedures must be carefully monitored to avoid spills or leaks. Any spill or leak has the potential to cause underground water contamination which may, if sufficiently severe, render a drinking water source unfit for human consumption. Contamination that does occur cannot be easily corrected.

Other Precautions:

- Do not breathe vapors. High vapor concentrations can cause unconsciousness or death.
- Use with adequate ventilation. Ventilation must be sufficient to limit employee exposure to ethylene dichloride below the permissible exposure limits. Observance of lower limits (see Section 5) is advisable.
- Avoid contact with eyes. May cause pain, irritation and watering.
- Avoid prolonged or repeated contact with skin. May cause irritation and dermatitis.
- Do not swallow. Swallowing may cause injury or death.
- Wash thoroughly after handling.
- Do not eat, drink or smoke in work areas.

References:

1. Industrial Hygiene and Toxicology, Volume II, Second Revised Edition, F. A. Patty, 1963, pp. 1280-4
2. Data Sheet 350, Ethylene Dichloride, Published by the National Safety Council
3. Dangerous Properties of Industrial Materials, Fifth Edition, Sax, 1979
4. PPG Product Bulletin, 55A, Ethylene Dichloride, PPG Industries, January, 1979
5. National Cancer Institute Brief Released September 26, 1978

(References continued on attached addendum)


Mgr., Product Safety

SL 080119

ADDENDUM TO MATERIAL SAFETY DATA SHEET ON ETHYLENE DICHLORIDE

(November, 1985)

SECTION 5 - EFFECTS OF OVEREXPOSURE (continued)

CHRONIC (continued)

Professor C. Maltoni, of Bologna, Italy, has studied the chronic effects of ethylene dichloride by inhalation in rats and mice over a 24-month period. Although this study has not yet been published, preliminary results recently issued by Professor Maltoni did not confirm NCI's findings of tumor genicity.

Although no evidence presently exists showing ethylene dichloride to cause cancer in humans, it is strongly suggested the ethylene dichloride users review their health programs, "tighten up" their operations and institute good operating and housekeeping practices designed to limit employee exposure as much below currently established exposure limits as practical.^{5,6}

Ethylene Dichloride is listed by NTP¹⁰ in Group II (substances that may reasonably be anticipated to be carcinogen). It is not listed by IARC or OSHA.

FISH, LC₅₀ (LETHAL CONCENTRATIONS)

Daphnia Magna	- 48-hour	- 218,000	µg/l
Bluegill	- 96-hour	- 550,000	µg/l
Fathead Minnow	- 96-hour	- 118,000	µg/l

REFERENCES (continued)

6. NIOSH, Criteria for a Recommended Standard, Occupational Exposure to Ethylene Dichloride, U.S. Department of HEW, March, 1976
7. Summary of NIOSH Recommendations for Occupational Health Standards, October, 1978
8. Organic Solvents Physical Properties and Methods of Purification, Riddick & Bunyer, Volume 2, Third Edition
9. Toxicology: The Basic Science of Poisons, Second Edition, J. Doull, C. Klassen, and M. Amdur, 1980, p. 267
10. Third Annual Report on Carcinogens, December, 1982, prepared by National Toxicology Program