

Material Safety Data Sheet



Ethylene Dichloride (1,2 Dichloroethane)

Section 1. Chemical product and company identification

Product Name	: Ethylene Dichloride (1,2 Dichloroethane)
Supplier	: AIRGAS INC., on behalf of its subsidiaries 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253
Synonym	: aethylenchlorid (german); 1,2-bichloroethane; bichlorure d'ethylene (french); borer sol; brocicide; chlorure d'ethylene (french); cloruro di ethene (italian); destruxol borer-sol; 1,2-dichloorethaan (dutch); 1,2-dichlor-aethan (german); dichloremulsion; 1,2-dichlorethane; di-chlor-mulsion; dichloro-1,2-ethane (french); alpha,beta-dichloroethane; sym-dichloroethane; 1,2-dichloroethane; dichloroethylene; 1,2-dicloroetano (italian); dutch liquid; dutch oil; edc; ent 1,656; ethane dichloride; ethyleendichloride (dutch); ethylene chloride; ethylene dichloride; ethylene dichloride (dot); 1,2-ethylene dichloride; freon 150; glycol dichloride; nci-c00511; ethane, 1,2-dichloro-; ent-1656; dowfume; 1,2-ethylidene dichloride
Material uses	: Other non specified industry: VINYL CHLORIDE SOLVENT; LEAD SCAVENGER IN ANTIKNOCK GASOLINE; PAINT; VARNISH AND FINISH REMOVERS; METAL DEGREASING; SOAPS AND SCOURING COMPOUNDS; WETTING AND PENETRATING AGENTS; ORGANIC SYNTHESIS; ORE FLOTATIONS.
MSDS#	: 001068
Date of Preparation/Revision	: 5/29/2007.
In case of emergency	: 1-866-734-3438

Section 2. Hazards identification

Physical state	: Liquid. (CLEAR LIQUID WITH A SWEET ODOR LIKE CHLOROFORM [NOTE: DECOMPOSES SLOWLY, BECOMES ACIDIC, AND DARKENS IN COLOR.]
Emergency overview	: Danger! MAY BE FATAL IF INHALED. HIGHLY FLAMMABLE LIQUID AND VAPOR. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CAUSES DAMAGE TO THE FOLLOWING ORGANS: KIDNEYS, LIVER, CARDIOVASCULAR SYSTEM, SKIN, EYES, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA. SUSPECT CANCER HAZARD. MAY CAUSE CANCER. VAPOR MAY CAUSE FLASH FIRE. MAY BE HARMFUL IF SWALLOWED. Do not ingest. Avoid contact with skin and clothing. Do not breathe vapor or mist. Keep away from heat, sparks and flame. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Risk of cancer depends on duration and level of exposure.
Routes of entry	: Dermal contact. Eye contact.
Potential acute health effects	
Eyes	: Irritating to eyes.
Skin	: Practically non-toxic in contact with skin. Irritating to skin.
Inhalation	: Very toxic by inhalation. Irritating to respiratory system.
Ingestion	: Harmful if swallowed.
Potential chronic health effects	: CARCINOGENIC EFFECTS Classified + (Proven.) by NIOSH. Classified 2B (Possible for human.) by IARC. Classified 2 (Reasonably Anticipated To Be Human Carcinogens.) by NTP, 2 (Suspected for human.) by European Union. A4 (Not classifiable for human or animal.) by ACGIH. MUTAGENIC EFFECTS Not available. TERATOGENIC EFFECTS : Not available.

Ethylene Dichloride (1,2 Dichloroethane)

Medical conditions aggravated by overexposure : Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

See toxicological Information (section 11)

Section 3. Composition, Information on Ingredients

United States

1,2-Dichloroethane 107-06-2 100

Exposure limits

ACGIH TLV (United States, 5/2004). Notes: Substance identified by other sources as a suspected or confirmed human carcinogen. 1996 Adoption Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. Refers to Appendix A -- Carcinogens.

TWA: 40 mg/m³ 8 hour(s). Form: All forms

TWA: 10 ppm 8 hour(s). Form: All forms

NIOSH REL (United States, 6/2001). Notes:

See Appendix C (Chloroethanes) See Appendix A - NIOSH Potential Occupational Carcinogen

STEL: 8 mg/m³ 15 minute(s). Form: All forms

STEL: 2 ppm 15 minute(s). Form: All forms

TWA: 4 mg/m³ 10 hour(s). Form: All forms

TWA: 1 ppm 10 hour(s). Form: All forms

OSHA PEL Z2 (United States, 6/2002).

AMP: 200 ppm 5 minute(s). Form: All forms

CEIL: 100 ppm Form: All forms

TWA: 50 ppm 8 hour(s). Form: All forms

Section 4. First aid measures

- Eye contact** : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
- Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
- Ingestion** : Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Section 5. Fire fighting measures

Flammability of the product : Flammable.

Auto-ignition temperature : 412.77°C (775°F)

Flash point : Open cup: 15.85°C (60.5°F).

Flammable limits : Lower: 6.2% Upper: 15.9%

Products of combustion : These products are carbon oxides (CO, CO₂), halogenated compounds, hydrogen chloride.

Fire fighting media and instructions : In case of fire, use water spray (fog), foam, dry chemicals, or CO₂.

Highly flammable liquid and vapor. Vapor may cause flash fire. Vapors may accumulate in low or confined areas, travel considerable distance to source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Special protective equipment for fire-fighters : Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full facepiece operated in positive pressure mode.

Section 6. Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment (Section 8). Do not touch or walk through spilled material.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : If emergency personnel are unavailable, contain spilled material. For small spills add absorbent (soil may be used in the absence of other suitable materials) and use a non-sparking or explosion proof means to transfer material to a sealed, appropriate container for disposal. For large spills dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

Section 7. Handling and storage

- Handling** : Do not ingest. Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Do not breathe vapor or mist. Keep away from heat, sparks and flame. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Wash thoroughly after handling.
- Storage** : Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8. Exposure Controls, Personal Protection

- Engineering controls** : Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal protection

- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves or gauntlets complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- 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.

Product name

United States

1,2-Dichloroethane

Exposure limits

ACGIH TLV (United States, 5/2004). Notes: Substance identified by other sources as a suspected or confirmed human carcinogen. 1996 Adoption Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. Refers to Appendix A -- Carcinogens.

TWA: 40 mg/m³ 8 hour(s). Form: All forms

TWA: 10 ppm 8 hour(s). Form: All forms

NIOSH REL (United States, 6/2001). Notes: See Appendix C (Chloroethanes) See Appendix A - NIOSH Potential Occupational Carcinogen

Ethylene Dichloride (1,2 Dichloroethane)

STEL: 8 mg/m³ 15 minute(s). Form: All forms
STEL: 2 ppm 15 minute(s). Form: All forms
TWA: 4 mg/m³ 10 hour(s). Form: All forms
TWA: 1 ppm 10 hour(s). Form: All forms
OSHA PEL Z2 (United States, 6/2002).
AMP: 200 ppm 5 minute(s). Form: All forms
CEIL: 100 ppm Form: All forms
TWA: 50 ppm 8 hour(s). Form: All forms

Section 9. Physical and chemical properties

Physical state : Liquid. (CLEAR LIQUID WITH A SWEET ODOR LIKE CHLOROFORM [NOTE: DECOMPOSES SLOWLY, BECOMES ACIDIC, AND DARKENS IN COLOR.])
Odor : ETHER-LIKE
Molecular weight : 98.96 g/mole
Molecular formula : C₂H₄Cl₂
Boiling/condensation point : 83.55°C (182.4°F)
Melting/freezing point : -35.4°C (-31.7°F)
Critical temperature : 287.9°C (550.2°F)
Specific gravity : 1.2569 (Water = 1)
Vapor density : 3.42 (Air = 1)
Evaporation rate : 5.05 compared to Butyl acetate.

Section 10. Stability and reactivity

Stability and reactivity : The product is stable.
Hazardous decomposition products : These products are halogenated compounds, hydrogen chloride.

Section 11. Toxicological information

Toxicity data

<u>Ingredient name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
1,2-Dichloroethane	LD50	670 mg/kg	Oral	Rat
	LD50	860 mg/kg	Oral	Rabbit
	LD50	413 mg/kg	Oral	Mouse
	LD50	2800 mg/kg	Dermal	Rabbit
	LDLo	286 mg/kg	Oral	human
	LDLo	714 mg/kg	Oral	man
	LC50	2646 ppm (1 hour(s))	Inhalation	Rat

IDLH : 50 ppm

Chronic effects on humans : **CARCINOGENIC EFFECTS** Classified + (Proven.) by NIOSH. Classified 2B (Possible for human.) by IARC. Classified 2 (Reasonably Anticipated To Be Human Carcinogens.) by NTP, 2 (Suspected for human.) by European Union. A4 (Not classifiable for human or animal.) by ACGIH.
Causes damage to the following organs: kidneys, liver, cardiovascular system, skin, eyes, central nervous system (CNS), eye, lens or cornea.

Other toxic effects on humans : Hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation (lung irritant).

Specific effects

Carcinogenic effects : May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenic effects : No known significant effects or critical hazards.

Reproduction toxicity : No known significant effects or critical hazards.

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Section 12. Ecological information

<u>Ingredient name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
1,2-Dichloroethane	Daphnia magna (EC50)	48 hour(s)	160 mg/l
	Daphnia magna (EC50)	48 hour(s)	180 mg/l
	Daphnia magna (EC50)	48 hour(s)	324 mg/l
	Pimephales promelas (LC50)	96 hour(s)	116 mg/l
	Pimephales promelas (LC50)	96 hour(s)	136 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	225 mg/l

Products of degradation : These products are carbon oxides (CO, CO₂) and water, halogenated compounds.





Toxicity of the products of biodegradation : The products of degradation are as toxic as the product itself.

Section 13. Disposal considerations



Waste disposal : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Consult your local or regional authorities.

Section 14. Transport information

<u>Regulatory information</u>	<u>UN number</u>	<u>Proper shipping name</u>	<u>Class</u>	<u>Packing group</u>	<u>Label</u>	<u>Additional information</u>
DOT Classification	UN1184	ETHYLENE DICHLORIDE	3	II	 	<p>Reportable quantity 100 lbs. (45.36 kg)</p> <p>Limited quantity Yes.</p> <p>Packaging instruction Passenger Aircraft Quantity limitation: 1 L</p> <p>Cargo Aircraft Quantity limitation: 60 L</p> <p>Special provisions IB2, T7, TP1</p>
TDG Classification	UN1184	ETHYLENE DICHLORIDE	3	II	 	<p>Explosive Limit and Limited Quantity Index 1</p> <p>Passenger Carrying Road or Rail Index 1</p>

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Mexico Classification	UN1184	ETHYLENE DICHLORIDE	3	II	 	Reportable quantity 100 lbs. (45.36 kg) Limited quantity Yes. Packaging instruction Passenger Aircraft Quantity limitation: 1 L Cargo Aircraft Quantity limitation: 60 L Special provisions IB2, T7, TP1

Section 15. Regulatory information

United States

HCS Classification : Flammable liquid
 Highly toxic material
 Irritating material
 Carcinogen
 Target organ effects

U.S. Federal regulations : TSCA 4(a) final test rules: 1,2-Dichloroethane
 TSCA 8(a) PAIR: 1,2-Dichloroethane
 TSCA 8(b) inventory: 1,2-Dichloroethane
 TSCA 12(b) one time export: 1,2-Dichloroethane
 SARA 302/304/311/312 extremely hazardous substances: No products were found.
 SARA 302/304 emergency planning and notification: No products were found.
 SARA 302/304/311/312 hazardous chemicals: 1,2-Dichloroethane
 SARA 311/312 MSDS distribution - chemical inventory - hazard identification: 1,2-Dichloroethane: Fire hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard
 Clean Water Act (CWA) 307: 1,2-Dichloroethane
 Clean Water Act (CWA) 311: No products were found.
 Clean air act (CAA) 112 accidental release prevention: No products were found.
 Clean air act (CAA) 112 regulated flammable substances: No products were found.
 Clean air act (CAA) 112 regulated toxic substances: No products were found.

SARA 313

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
Form R - Reporting requirements	: 1,2-Dichloroethane	107-06-2	100
Supplier notification	: 1,2-Dichloroethane	107-06-2	100

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

Ethylene Dichloride (1,2 Dichloroethane)

State regulations : Pennsylvania RTK: 1,2-Dichloroethane: (special hazard, environmental hazard, generic environmental hazard)
Massachusetts RTK: 1,2-Dichloroethane
New Jersey: 1,2-Dichloroethane
WARNING: This product contains a chemical known to the State of California to cause cancer.

<u>Ingredient name</u>	<u>Cancer</u>	<u>Reproductive</u>	<u>No significant risk level</u>	<u>Maximum acceptable dosage level</u>
1,2-Dichloroethane	Yes.	No.	Yes.	No.

Canada

WHMIS (Canada) : Class B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
Class D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).
Class D-2A: Material causing other toxic effects (VERY TOXIC).
CEPA DSL: 1,2-Dichloroethane

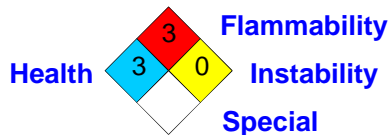
Section 16. Other information

Label Requirements : MAY BE FATAL IF INHALED.
HIGHLY FLAMMABLE LIQUID AND VAPOR.
CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
CAUSES DAMAGE TO THE FOLLOWING ORGANS: KIDNEYS, LIVER, CARDIOVASCULAR SYSTEM, SKIN, EYES, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA.
SUSPECT CANCER HAZARD.
MAY CAUSE CANCER.
VAPOR MAY CAUSE FLASH FIRE.
MAY BE HARMFUL IF SWALLOWED.

Hazardous Material Information System (U.S.A.) :

Health	*	3
Fire hazard		3
Reactivity		0
Personal protection		C

National Fire Protection Association (U.S.A.) :



Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.