

SAFETY DATA SHEET

M5855 - ANSI - EN



ETHYLENE DICHLORIDE (EDC) FINISHED AND TECHNICAL GRADE

SDS No.: M5855

Rev. Date: 16-Mar-2020

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Company Identification:	Occidental Chemical Corporation 14555 Dallas Parkway, Suite 400, Dallas, Texas 75254-4300
24 Hour Emergency Telephone Number:	1-800-733-3665 or 1-972-404-3228 (USA); CANUTEC (Canada): 1-613-996-6666; CHEMTREC (within USA and Canada): 1-800-424-9300; CHEMTREC (outside USA and Canada): +1 703-527-3887; CHEMTREC Contract No: CCN16186
To Request an SDS:	MSDS@oxy.com or 1-972-404-3245
Customer Service:	1-800-752-5151 or 1-972-404-3700
Product Identifier:	ETHYLENE DICHLORIDE (EDC) FINISHED AND TECHNICAL GRADE
Synonyms:	EDC; 1,2-Dichloroethane; SYM-DICHLOROETHANE; ETHYLENE DICHLORIDE; DUTCH LIQUID; DUTCH OIL
Product Use:	Chemical Intermediate; Process cleaner
Uses Advised Against:	NOT FOR USE IN RESIDENTIAL HOME OR WORKSHOP AREAS. NOT FOR USE IN COMMERCIAL/INDUSTRIAL APPLICATIONS NOT PROPERLY DESIGNED TO ACCOMMODATE THE SAFE USE OF THIS CHEMICAL*.
Chemical Family:	Chlorinated Hydrocarbon

SECTION 2. HAZARDS IDENTIFICATION

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OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

EMERGENCY OVERVIEW:

Color: Colorless; (Turns dark on exposure to air, moisture, and light)
Physical State: Liquid
Appearance: Clear
Odor: Mildly sweet chloroform like odor

Signal Word: **DANGER**

MAJOR HEALTH HAZARDS: HARMFUL IF SWALLOWED. MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS. MAY BE HARMFUL IN CONTACT WITH SKIN. MAY BE ABSORBED THROUGH THE SKIN. MAY CAUSE DROWSINESS OR DIZZINESS. CAUSES SKIN IRRITATION. CAUSES EYE IRRITATION. SUSPECTED OF CAUSING GENETIC DEFECTS. MAY CAUSE CANCER.

PHYSICAL HAZARDS: HIGHLY FLAMMABLE LIQUID AND VAPOR.

PRECAUTIONARY STATEMENTS: Keep container tightly closed. Keep away from heat/ sparks/ open flames/ hot surfaces - No smoking. Ground/ bond container and receiving equipment. Use explosion-proof equipment (e.g. electrical, ventilating, and lighting). Use only non-sparking tools. Take precautionary measures against static discharge. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing vapors. Wash thoroughly with soap and water after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves, protective clothing, eye, and face protection.

ADDITIONAL HAZARD INFORMATION: May be fatal if swallowed and enters airways. This product may be absorbed through the skin, causing symptoms similar to those of inhalation.

HAZARD CLASSIFICATION:

GHS: PHYSICAL HAZARDS:	Flammable Liquid - Cat. 2 Highly Flammable
GHS: CONTACT HAZARD - SKIN:	Category 2 - Causes skin irritation
GHS: CONTACT HAZARD - EYE:	Category 2B - Causes eye irritation
GHS: ACUTE TOXICITY - ORAL:	Category 4 - Harmful if swallowed
GHS: ASPIRATION HAZARD:	Category 1 - May be fatal if swallowed and enters airways
GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE):	Category 3 - May cause drowsiness or dizziness
GHS: CARCINOGENICITY:	Category 1B - May cause cancer
GHS: GERM CELL MUTAGENICITY:	Category 2 - Suspected of causing genetic defects
HAZARDS NOT OTHERWISE CLASSIFIED (HNOC):	- ACUTE TOXICITY - DERMAL: Category 5 (May be harmful in contact with skin)

GHS SYMBOL: Flame, Health hazards, Exclamation mark

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GHS SIGNAL WORD: DANGER

GHS HAZARD STATEMENTS:

GHS - Physical Hazard Statement(s)

- Highly flammable liquid and vapor

GHS - Health Hazard Statement(s) -

- Harmful if swallowed
- May be fatal if swallowed and enters airways
- Causes skin irritation
- Causes eye irritation
- May cause drowsiness or dizziness
- Suspected of causing genetic defects
- May cause cancer

Additional Hazards - GHS Hazards Not Otherwise Classified (HNOC):

- MAY BE HARMFUL IN CONTACT WITH SKIN

GHS - Precautionary Statement(s) - Prevention

- Keep away from heat/sparks/open flames/hot surfaces - No smoking
- Keep container tightly closed
- Ground/ bond container and receiving equipment
- Use explosion-proof equipment (electrical equipment, ventilating equipment, lighting equipment, etc.)
- Use only non-sparking tools
- Take precautionary measures against static discharge
- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood
- Avoid breathing mist, vapors, or spray
- Wash hands thoroughly after handling
- Do not eat, drink or smoke when using this product
- Use only outdoors or in a well-ventilated area
- Wear protective gloves/protective clothing/eye protection/face protection

GHS - Precautionary Statement(s) - Response

- In case of fire: Use carbon dioxide, regular dry chemical, foam or water for extinction
- IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
- IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with soap and water.
- IF DERMAL EXPOSED: Call a POISON CENTER OR LICENSED HEALTH CARE PROVIDER if you feel unwell
- IF ON SKIN: Wash with plenty of soap and water
- Specific treatment for skin contact (see First Aid information in Section 4 of the SDS)
- If skin irritation occurs: Get medical advice/attention
- Take off contaminated clothing and wash it before reuse
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

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Continue rinsing

- If eye irritation persists: Get medical advice/attention
- IF INHALED: Remove person to fresh air and keep comfortable for breathing
- IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell
- IF exposed or concerned: Get medical advice/attention

GHS - Precautionary Statement(s) - Storage

- Keep container tightly closed
- Store in a well-ventilated place. Keep cool
- Store in secure manner

GHS - Precautionary Statement(s) - Disposal

- Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations

Hazard Not Otherwise Classified (HNOC)-Health

- May be harmful in contact with skin
- This material may be absorbed across the skin causing systemic effects

See Section 11: TOXICOLOGICAL INFORMATION

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	Percent [%]
Ethylene Dichloride	107-06-2	99.99 - 100

SECTION 4. FIRST AID MEASURES

INHALATION: If inhaled and adverse effects occur, remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician. See Notes to Physician below and Section 11 for more information.

SKIN CONTACT: If on skin or hair, wash with plenty of soap and water. If skin irritation occurs: Get medical advice/ attention. Take off contaminated clothing and wash before reuse. See Notes to Physician below and Section 11 for more information.

EYE CONTACT: If in eyes, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

INGESTION: If swallowed, rinse mouth with water (only if the person is conscious). Never give anything by mouth to an unconscious or convulsive person. Contact a poison center or doctor/physician if you feel unwell.

Most Important Symptoms/Effects (Acute and Delayed):

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Acute Symptoms/Effects:

Inhalation (Breathing): Respiratory System Effects: Central Nervous System (CNS) effects are characteristic following inhalation of chlorinated hydrocarbons and can range from lightheadedness at low level exposures to loss of consciousness at high levels. CNS effects are an early warning that exposure to high levels has occurred and there is risk of cardiac effects (palpitations, low blood pressure, arrhythmia, arrest). CNS effects include the following symptoms: abdominal pain, nausea, vomiting, headache, lightheadedness, blurry or double vision, personality changes, weakness, slurred speech, stupor, incoordination (disequilibrium, ataxia), coma, and respiratory arrest. May irritate upper airways.

Skin: Skin Irritation. Skin exposure may cause irritation, rough red, dry skin, edema, blisters. This material may be absorbed across the skin causing symptoms similar to inhalation exposures.

Eye: Eye Irritation. Eye exposure may cause irritation, tearing, pain, conjunctivitis, clouding of cornea.

Ingestion (Swallowing): Gastrointestinal System Effects: May be fatal if swallowed. Ingesting this material may cause gastrointestinal irritation, nausea, vomiting, headache, breathing difficulty, reduced blood pressure, internal bleeding, cyanosis, weak and rapid pulse, Central Nervous System (CNS) depression, and Central Nervous System (CNS) symptoms such as tremor, nystagmus and memory problems.

Delayed Symptoms/Effects:

May cause chemical pneumonitis. Reduced renal output (oliguria). Elevation of liver enzymes. Renal (kidney) failure. Liver failure. May cause acute adrenal failure. Prolonged skin contact may cause burns and blisters. May cause chronic dermatitis - rough, dry, red skin due to extraction of fatty materials. May cause eye damage such as corneal damage, decreased vision. Serious ingestions may cause widespread organ damage to kidney, liver, adrenal glands, as well as gastrointestinal bleeding. A bluish/purple discoloration of the skin may occur when ingested. May cause cancer. Suspected of causing genetic defects.

Target Organ Effects: This material is a Central Nervous System (CNS) depressant and can damage the liver, kidneys, and adrenal glands.

Protection of First-Aiders: Do not breathe gas, fumes, vapor, mist, or spray. Protect yourself by avoiding contact with this material. Use personal protective equipment. Refer to Section 8 for specific personal protective equipment recommendations. Consider the possibility of high levels of gas in confined/unventilated spaces or low-lying areas.

Notes to Physician: For ingestion, nasogastric aspiration is recommended if volume ingested is of sufficient volume to aspirate. Protect the airway. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material.

Interaction with Other Chemicals Which Enhance Toxicity: May potentiate other agents that cause central nervous system (CNS) and respiratory system depression, such as alcohol, opiates. Liver toxicity may be enhanced by other agents that cause liver damage, such as alcohol, acetaminophen.

Medical Conditions Aggravated by Exposure: May increase potential for cardiac arrhythmia. Persons with alcoholism, liver disorders, kidney disorders, respiratory system disorders may be more susceptible to toxicity.

SECTION 5. FIRE-FIGHTING MEASURES

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Fire Hazard: HIGHLY FLAMMABLE LIQUID AND VAPOR. Vapor/air mixtures are explosive. The vapor is heavier than air. Vapors or gases may ignite at distant sources and flash back.

Explosive properties: Vapors form flammable/explosive mixture in air.

Extinguishing Media: Use dry chemical, foam, carbon dioxide (CO₂), water spray, or water fog.

Unsuitable Extinguishing Media: Water may be ineffective, but should be used to keep fire-exposed containers cool.

Specific Hazards: Explosive vapor could form. Highly flammable.

Unusual Hazards: Runoff to sewer may create fire or explosion hazard. Containers may explode when heated.

Fire Fighting: Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Water may be ineffective as an extinguishing media. Move container from fire area if it can be done without risk. Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Eliminate all sources of ignition. Cool containers with water spray until well after the fire is out. Flood with fine water spray. Do not scatter spilled material with high-pressure water streams.

Component	Immediately Dangerous to Life/ Health (IDLH)
Ethylene Dichloride 107-06-2	50 ppm IDLH

Hazardous Combustion Products: Oxides of carbon; Chlorine; Hydrogen chloride; Phosgene

Products Formed During Combustion and Thermal Degradation: Avoid contact with pure oxygen, strong alkalis, alkali metals, open flames and welding arcs, or other high temperature sources which induce thermal decomposition to irritating and corrosive HCl

Sensitivity to Mechanical Impact: Not sensitive.

Sensitivity to Static Discharge: Electrostatic charges may build up during handling and may form ignitable vapor-air mixtures in storage containers. Ground equipment in accordance with industry standards and best practices such as NFPA 77 [Recommended Practices on Static Electricity (2007)] and American Petroleum Institute (API) RP Recommended Practice 2003 [Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents (2008)].

Lower Flammability Level (air): 6.2 %

Upper Flammability Level (air): 15.9 %

Flash point: 55 °F (13 °C) (TCC)

Method: TCC - Tag Closed Cup

Auto-ignition Temperature: 775 °F (413 °C)

GHS: PHYSICAL HAZARDS:

- Flammable Liquid - Cat. 2 Highly Flammable

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SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: This material is highly flammable, handle with extreme care. Evacuate unnecessary personnel and eliminate all sources of ignition. Evacuation of surrounding area may be necessary for large spills. Do not breathe vapors, mist, or spray. Avoid contact with skin and eyes. Wear appropriate personal protective equipment recommended in Section 8, Exposure Controls / Personal Protection, of the SDS. Stay upwind and keep out of low areas. Most vapors are heavier than air and will spread along ground and collect in low or confined areas (drains, basements, tanks). Ventilate closed spaces before entering.

Personal Protective Equipment: For Unknown Concentrations or exposures above IDLH (Immediately Dangerous to Life or Health) - Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece. See section 8 for information on personal protective equipment. When working around this material, consider the use of flame resistant and anti-static safety clothing and footwear.

Emergency Procedures: Evacuate unnecessary personnel and eliminate all sources of ignition. For other than minor leaks, immediately implement predetermined emergency plan. Stop the release if it can be done safely from a distance. Prevent material and runoff from entering sewers and waterways if it can be done safely well ahead of the release.

Environmental Precautions: Keep out of water supplies, sewers and soil. Avoid discharge into drains, surface water or groundwater. Releases should be reported, if required, to appropriate agencies.

Methods and Materials for Containment, Confinement, and/or Abatement: Take action to protect personnel. Evacuate unnecessary and unprotected personnel. Isolate hazard area and deny entry. Shut off ventilation system if needed. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Ventilate closed spaces before entering. Stop leak if possible without personal risk. Completely contain spilled materials with dikes, sandbags, etc. Remove contaminated soil or collect with appropriate, noncombustible absorbent and place into suitable container. Keep container tightly closed and properly labeled. Liquid material may be removed with a properly rated vacuum truck. Dispose of in accordance with all applicable regulations.

Methods and Materials for Clean-up :

Recovery: Before entering an EDC storage tank or other EDC vessel for cleaning or inspection, any remaining EDC should be drained or removed by vacuum, and placed in a safe container awaiting disposal or reuse. The tank should then be nitrogen dried or steamed or filled with water, drained, ventilated, and checked for presence of EDC vapors. The vessel will need to be completely dry before introducing EDC back in the vessel.

Neutralization: Remove metal fines or chips, rust, and all other insoluble contaminants from tank bottoms. After removing insoluble contaminants, rinse all EDC wetted surfaces thoroughly with an alcohol or water rinse. If cleaning a tank where acidity has been a problem, all EDC wet surfaces should be scrubbed with a wire brush and a 5% soda ash (sodium carbonate) or baking soda (sodium bicarbonate) solution to remove metal chlorides and visible patches of corrosion. STRONG ALKALIS, SUCH AS CAUSTIC SODA (SODIUM HYDROXIDE, NaOH) OR CAUSTIC POTASH (POTASSIUM HYDROXIDE, KOH) MUST NOT BE USED. THEY CAN REACT WITH EDC TO FORM EXPLOSIVE MIXTURES.

Final Disposal: For waste disposal, see section 13.

Additional Disaster Prevention Measures: All storage tanks should be diked to contain the tank contents in the event of a spill or tank rupture. They should be large enough to contain the tank's volume, and an additional appropriate volume as a safety factor. Review regulations prior to construction.

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SECTION 7. HANDLING AND STORAGE

Handling:

Precautions for Safe Handling: This material is highly flammable, handle with extreme care. Use only equipment and hoses approved for this material. Keep away from heat, sparks, flame and other sources of ignition. Take precautionary measures against static discharge. Use non-sparking tools and equipment. Ground/bond container and receiving equipment. Use only explosion-proof equipment. Ensure adequate ventilation, especially in confined areas. Most vapors are heavier than air and will spread along ground and collect in low or confined areas (drains, basements, tanks). Do not reuse drum without recycling or reconditioning in accordance with any applicable federal, state or local laws. Do not use cutting or welding torches, open flames or electric arcs on empty or full containers. Avoid breathing vapor or mist. Avoid contact with skin, eyes and clothing. Do not taste or swallow. Wear personal protective equipment as described in Exposure Controls/Personal Protection (Section 8) of the SDS. Wash thoroughly after handling. Do not eat, drink or smoke in areas where this material is used.

Technical measures/precautions: During EDC transfers from one container to another, equipment should be properly grounded and bonded to prevent the build up of static electricity. If discharged, this build up could create an igniting spark. See additional information in the OxyChem Ethylene Dichloride (EDC) Technical Handbook [<https://www.oxy.com/OurBusinesses/Chemicals/Products/Documents/ethylenedichloride/edc.pdf>].

Prevention of contact: Avoid contact with incompatible materials. Wash skin and contaminated clothing thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves, protective clothing, eye, and face protection. Use only outdoors or in a well-ventilated area.

Storage:

Safe Storage Conditions: Store and handle in accordance with all current regulations and standards. Keep away from heat, sparks, pilot lights, welding operations and open flame. Keep container tightly closed and properly labeled. Store in a cool, dry area. Store in a well-ventilated area. Prevent water or moist air from entering storage tanks or containers. Do not store in aluminum container or use aluminum fittings or transfer lines. Protect from sunlight. Keep separated from incompatible substances (see below or Section 10 of the Safety Data Sheet).

Technical measures: See additional information in the OxyChem Ethylene Dichloride (EDC) Technical Handbook [<https://www.oxy.com/OurBusinesses/Chemicals/Products/Documents/ethylenedichloride/edc.pdf>].

Incompatible Substances: Acids, Bases, Alkali metals such as aluminum, Amines, Oxidizing agents, High temperature sources, Pure oxygen, Strong UV light (welding arcs).

Packaging Material: Bulk storage containers should be constructed of mild, carbon, or stainless steel. DO NOT USE REACTIVE METALS SUCH AS ALUMINUM, ZINC, OR MAGNESIUM ALLOYS AS A MATERIAL OF CONSTRUCTION FOR ANY WETTED METAL PARTS. NEOPRENE AND NATURAL RUBBER PARTS CANNOT BE USED FOR EDC SERVICE.

Additional Information:

GHS: PHYSICAL HAZARDS:

- Flammable Liquid - Cat. 2 Highly Flammable

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SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION**REGULATORY EXPOSURE LIMIT(S):**

Listed below for the product components that have regulatory occupational exposure limits (OEL's).

Component	OSHA Final PEL TWA	OSHA Final PEL STEL	OSHA Final PEL Ceiling
Ethylene Dichloride 107-06-2 (99.99 - 100)	50 ppm	-----	100 ppm
Chloroacetaldehyde 107-20-0 (< 0.0003)	-----	-----	1 ppm 3 mg/m ³
1,1,2-Trichloroethane 79-00-5 (< 0.0002)	10 ppm 45 mg/m ³	-----	-----
Trichloroethylene 79-01-6 (< 0.0002)	100 ppm	-----	200 ppm

OEL: Occupational Exposure Limit; OSHA: United States Occupational Safety and Health Administration; PEL: Permissible Exposure Limit; TWA: Time Weighted Average; STEL: Short Term Exposure Limit
OSHA Ceiling values indicate the exposure limit, which at no time shall be exceeded. Instantaneous monitoring is the preferred method to determine compliance with OSHA Ceiling values. If instantaneous monitoring is not feasible, then the ceiling shall be assessed as a 15-minute time weighted average exposure which shall not be exceeded at any time during the working day [29CFR1910.1000(a)(1)]

Component	Canada - TWAs	Canada - STELs	Canada - Ceilings
Ethylene Dichloride 107-06-2	Ontario - 10 ppm (TWA) Alberta - 10 ppm (TWA) Alberta - 40 mg/m ³ (TWA) British Columbia - 1 ppm (TWA)	-----	-----
Chloroacetaldehyde 107-20-0	-----	-----	Ontario - 1 ppm (Ceiling)
1,1,2-Trichloroethane 79-00-5	Ontario - 10 ppm (TWA) Alberta - 10 ppm (TWA) Alberta - 55 mg/m ³ (TWA) British Columbia - 10 ppm (TWA)	-----	-----
Trichloroethylene 79-01-6	Ontario - 10 ppm (TWA) Alberta - 50 ppm (TWA) Alberta - 269 mg/m ³ (TWA) British Columbia - 10 ppm (TWA)	Ontario - 25 ppm (STEL)	-----

NON-REGULATORY EXPOSURE LIMIT(S):

Listed below for the product components that have non-regulatory occupational exposure limits (OELs).

Component	ACGIH TWA	ACGIH STEL	ACGIH Ceiling	Skin Absorption -	OSHA TWA (Vacated)	OSHA STEL (Vacated)	OSHA Ceiling

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				ACGIH			(Vacated)
Ethylene Dichloride	10 ppm	-----	-----	-----	1 ppm 4 mg/m ³	2 ppm 8 mg/m ³	-----
Chloroacetaldehyde	-----	-----	1 ppm	-----	-----	-----	1 ppm 3 mg/m ³
1,1,2-Trichloroethane	10 ppm	-----	-----	Listed	10 ppm 45 mg/m ³	-----	-----
Trichloroethylene	10 ppm	25 ppm	-----	-----	50 ppm 270 mg/m ³	200 ppm 1080 mg/m ³	-----

- The Non-Regulatory United States Occupational Safety and Health Administration (OSHA) limits, if shown, are the Vacated 1989 PEL's (vacated by 58 FR 35338, June 30, 1993).

- The American Conference of Governmental Industrial Hygienists (ACGIH) is a voluntary organization of professional industrial hygiene personnel in government or educational institutions in the United States. The ACGIH develops and publishes recommended occupational exposure limits each year called Threshold Limit Values (TLVs) for hundreds of chemicals, physical agents, and biological exposure indices.

Recommended Exposure Limits (REL's) are non-regulatory occupational exposure limits that the manufacturer has established based on health effects data.

Component	OXY REL 8 hr TWA	OXY REL STEL	OXY REL Ceiling
Ethylene Dichloride 107-06-2 (99.99 - 100)	1 ppm	3 ppm (up to 30 minutes per day)	5 ppm

Additional Advice: ACGIH and/or Recommended Exposure Level (REL) Ceiling values indicate the exposure limit, which at no time shall be exceed. Instantaneous monitoring is the preferred method to determine compliance with Ceiling values. If instantaneous monitoring is not feasible, then the ceiling shall be assessed as a 15-minute time weighted average exposure, which shall not be exceeded at any time during the working day.

ENGINEERING CONTROLS: Use explosion proof equipment and lighting in classified/controlled areas. Provide local exhaust ventilation where vapor or mist may be generated. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Wear safety glasses with side-shields. Wear chemical safety goggles with a face shield to protect against eye and skin contact when appropriate. Provide an emergency eyewash fountain and quick drench shower in the immediate work area.

Skin and Body Protection: Wear chemical resistant clothing and footwear to prevent skin contact. Contaminated clothing should be removed, then discarded or laundered. Always place pants legs over boots.

Hand Protection: Wear appropriate chemical resistant gloves. Consult a glove supplier for assistance in selecting an appropriate chemical resistant glove.

Protective Material Types: Viton®, Polyvinyl alcohol (PVA)

Respiratory Protection: Where vapor or mist concentration exceeds or is likely to exceed applicable exposure limits, a NIOSH approved respirator with organic vapor cartridge filter(s) is required. When an air-purifying respirator is not adequate, for exposures above the IDLH, or for spills and/or emergencies of unknown concentrations, a NIOSH approved self-contained breathing apparatus or airline respirator with full-face piece with auxiliary self-contained escape pack is required. A respiratory protection program that meets 29 CFR 1910.134

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must be followed whenever workplace conditions warrant use of a respirator.

Component	Immediately Dangerous to Life/ Health (IDLH)
Ethylene Dichloride 107-06-2	50 ppm IDLH

Other Protective Equipment: An emergency eye wash fountain and quick drench shower should be provided in the immediate work area.

HYGIENE MEASURES: Do not eat, drink or smoke while handling the product. Wash hands before eating, drinking, smoking or taking a break. Contaminated clothing should be changed and washed before being reused. Wash off with soap and water.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance:	Oily clear liquid
Color:	Colorless; (Turns dark on exposure to air, moisture, and light)
Odor:	Mildly sweet chloroform like odor
Molecular Weight:	98.96
Molecular Formula:	C ₂ H ₄ Cl ₂
Chemical Family:	Chlorinated Hydrocarbon
pH:	Not applicable
Melting Point/Range:	Not applicable to liquids
Freezing Point/Range:	-35.5 to -36.0 °C
Boiling point °C	83.6 °C
Flash point:	55 °F (13 °C) (TCC)
Method:	TCC - Tag Closed Cup
Explosion limits:	Not applicable
Vapor Pressure:	76.85 mmHg @ 25 °C
Vapor Density (air=1):	3.42
Relative Density/Specific Gravity (water=1):	1.25
Density:	1.253 g/cm ³ @ 20 °C
Water Solubility:	8.6 g/L @ 25°C
Partition Coefficient (n-octanol/water):	Log Kow = 1.45 - 1.48
Auto-ignition Temperature:	775 °F (413 °C)
Decomposition Temperature:	No data available
Odor Threshold [ppm]:	26 ppm (detection); 87 ppm (recognition)
Evaporation Rate (ether=1):	0.3
VOC Content (%):	100 %
Volatility:	100 %
Lower Flammability Level (air):	6.2 %
Upper Flammability Level (air):	15.9 %
Viscosity:	0.829 mPa · s (dynamic) @ 20 °C 1.0387 mm ² /s (calculated Kinematic viscosity) @ 20 °C

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SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Stable at normal temperatures and pressures.

Reactivity: Not reactive under normal temperatures and pressures.

Possibility of Hazardous Reactions: Avoid heat, flames, sparks and other sources of ignition. Fire or intense heat may cause violent rupture of packages. Avoid contact with incompatible substances and conditions due to generation of phosgene and other toxic and irritating substances. Strong UV light such as welding arcs may generate phosgene. Solvent decomposition occurs when catalyzed by metal chlorides which can be produced by reaction of hydrochloric acid and metals.

Conditions to Avoid (e.g., static discharge, shock, or vibration): To avoid ignition by static discharge, equipment must be bonded and grounded.

Incompatible Substances: Acids; Bases; Alkali metals such as aluminum; Amines; Oxidizing agents; High temperature sources; Pure oxygen; Strong UV light (welding arcs)

Hazardous Decomposition Products: Oxides of Carbon, Chlorine, Hydrogen chloride, Phosgene.

Hazardous Polymerization: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS:

TOXICITY:

Chlorinated hydrocarbons can act as simple asphyxiants, posing a risk by their displacement of oxygen in the air, thus causing hypoxic environmental conditions leading to reduced oxygen uptake and hypoxemia. Some direct toxicity is also likely, especially at very high exposure levels. The toxic mechanisms include direct myocardial depression and sensitization of the myocardium to endogenous catecholamines. With very high level, as in inhalation abuse, both direct toxicity and reduced oxygen concentrations may exist and can interact to further increase risk. Sudden death may occur. Effects of low level, accidental exposure to chlorinated aliphatic hydrocarbons are usually limited to mild upper respiratory tract irritation and/or mild CNS effects. Direct pulmonary toxicity is usually of little clinical concern; however, moderate to high levels of exposure may result in significant upper airway irritation, pneumonitis and CNS depressant effects. Very high exposures may result in severe respiratory depression or failure. Cardiac arrhythmias are generally associated with moderate to severe exposures. Exposure to high levels produces direct liver and kidney toxicity. The onset of elevated liver enzymes and indicators of renal impairment may be delayed.

ACUTE TOXICITY:

Eye contact: Eye contact may cause irritation, conjunctivitis, tearing, swelling, eye pain, corneal edema, blurred vision, cornea epithelial damage.

Skin contact: Skin contact may cause irritation, rough, red, dry skin, edema, blisters. Prolonged skin contact may cause burns and blisters. Ethylene dichloride is absorbed through the skin although it takes quite large doses

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to cause serious acute systemic poisoning. Dermal absorption through human and rat epidermis is relatively fast.

Inhalation: Inhalation of this material may cause lightheadedness, loss of consciousness, cardiotoxicity, palpitations, low blood pressure, arrhythmia, arrest, nausea, vomiting, abdominal pain, headache, blurry vision, double vision, alteration of light perception, personality changes, weakness, stupor, incoordination (disequilibrium, ataxia), coma, respiratory arrest. May irritate upper airways.

Ingestion: May be fatal if swallowed. Ingestion of this material may cause gastrointestinal irritation, central nervous system (CNS) depression, central nervous system symptoms such as tremor, nystagmus and memory problems, nausea, vomiting, headache, breathing difficulty, reduced blood pressure, internal bleeding, cyanosis, weak and rapid pulse.

CHRONIC TOXICITY:

Rats and mice exposed to ethylene dichloride via inhalation did not show increased development of tumors. Benign mammary tumors were increased in the female animals, but these were ascribed to a general stress rather than a tumorigenic action. Rats receiving this material by gavage developed a significant increase in hemangiosarcomas of the circulatory system and tumors in the forestomach. Mice receiving the material by gavage developed lymphomas, lung tumors, hepatocellular carcinomas, and mammary and uterine adenocarcinomas.

Chronic Effects: Chronic overexposure may cause adverse kidney and liver effects. Repeated or prolonged contact with the liquid can produce dermatitis. Rats and mice given this material by gavage developed tumors. May cause cancer. Suspected of causing genetic defects.

SIGNS AND SYMPTOMS OF EXPOSURE:

Inhalation (Breathing): Respiratory System Effects: Central Nervous System (CNS) effects are characteristic following inhalation of chlorinated hydrocarbons and can range from lightheadedness at low level exposures to loss of consciousness at high levels. CNS effects are an early warning that exposure to high levels has occurred and there is risk of cardiac effects (palpitations, low blood pressure, arrhythmia, arrest). CNS effects include the following symptoms: abdominal pain, nausea, vomiting, headache, lightheadedness, blurry or double vision, personality changes, weakness, slurred speech, stupor, incoordination (disequilibrium, ataxia), coma, and respiratory arrest. May irritate upper airways.

Skin: Skin Irritation. Skin exposure may cause irritation, rough red, dry skin, edema, blisters. This material may be absorbed across the skin causing symptoms similar to inhalation exposures.

Eye: Eye Irritation. Eye exposure may cause irritation, tearing, pain, conjunctivitis, clouding of cornea.

Ingestion (Swallowing): Gastrointestinal System Effects: May be fatal if swallowed. Ingesting this material may cause gastrointestinal irritation, nausea, vomiting, headache, breathing difficulty, reduced blood pressure, internal bleeding, cyanosis, weak and rapid pulse, Central Nervous System (CNS) depression, and Central Nervous System (CNS) symptoms such as tremor, nystagmus and memory problems.

Interaction with Other Chemicals Which Enhance Toxicity: May potentiate other agents that cause central nervous system (CNS) and respiratory system depression, such as alcohol, opiates. Liver toxicity may be enhanced by other agents that cause liver damage, such as alcohol, acetaminophen.

GHS HEALTH HAZARDS:

GHS: CONTACT HAZARD - SKIN: Category 2 - Causes skin irritation

GHS: CONTACT HAZARD - EYE: Category 2B - Causes eye irritation

GHS: ACUTE TOXICITY - ORAL: Category 4 - Harmful if swallowed

GHS: ACUTE TOXICITY - DERMAL: Category 5 - May be harmful in contact with skin

GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE): Category 3 - May cause drowsiness or dizziness

GHS: ASPIRATION HAZARD: Category 1 - May be fatal if swallowed and enters airways

GHS: CARCINOGENICITY: Category 1B - May cause cancer

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GHS: GERM CELL MUTAGENICITY: Category 2 - Suspected of causing genetic defects**TOXICITY DATA:****PRODUCT TOXICITY DATA:** Product level testing data as noted below:

LD50 Oral: 770 mg/kg (Rat)	LD50 Dermal: 4890 mg/kg (Rabbit)	LC50 Inhalation: 8000 mg/m ³ (4 hr. - Rat)
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COMPONENT TOXICITY DATA: The component toxicity data is populated by the LOLI database and may differ from the product toxicity data given.

Component	Oral LD50	Dermal LD50	Inhalation LC50
Ethylene Dichloride	680 mg/kg (Rat)	4890 mg/kg (Rabbit)	4 mg/L (6-h Rat)
Chloroacetaldehyde	23 mg/kg (Rat)	67 mg/kg (Rabbit)	650 mg/m ³ (1-h Rat)
1,1,2-Trichloroethane	836 mg/kg (Rat)	5371 mg/kg (Rabbit)	2.78 mg/L (8-h Rat)
Trichloroethylene	4920 mg/kg (Rat)	29000 mg/kg (Rabbit)	26 mg/L (4-h Rat)

Eye Irritation/Corrosion: This product is classified as causing serious eye irritation (Category 2B) per GHS criteria.**Skin Irritation/Corrosion:** The product is classified as cutaneous irritant (Category 2), according to GHS classification criteria.**Skin Absorbent / Dermal Route:** Yes.**RESPIRATORY OR SKIN SENSITIZATION:** Not classified as a skin or respiratory sensitizer per GHS criteria.**CARCINOGENICITY:** Classified as Category 1B (May cause cancer) under GHS. EDC is regarded as carcinogenic after oral and inhalation exposure.

IARC classification of Group 2B – possibly carcinogenic to humans

NTP Group 2, reasonably anticipated to be a carcinogen

NIOSH: Carcinogen.

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure): Category 3 - May cause drowsiness or dizziness.**INHALATION HAZARD:** Inhalation is associated with both acute and chronic health effects.**IN-VITRO / IN-VIVO GENOTOXICITY:** Category 2 - Suspected of causing genetic defects. One or more components in this material have tested positive in mutagenicity studies.**REPRODUCTIVE TOXICITY:** Not classified as a reproductive toxin per GHS criteria. Based on rodent studies ethylene dichloride is not expected to increase the risk of congenital anomalies.**ASPIRATION HAZARD:** Category 1 - May be fatal if swallowed and enters airways. This classification as an aspiration hazard is based upon its physical properties.**TOXICOKINETICS:** In animal studies, equilibrium blood concentrations of 1,2-dichloroethane were obtained 2-3 hours after inhalation exposure, 15-60 minutes after oral exposure, and 1-2 hours after aqueous dermal exposure. 1,2-Dichloroethane is readily metabolized in the body. The primary metabolic pathways for this chemical are mixed function oxidation (MFO) and glutathione conjugation. Glutathione conjugation becomes relatively more important at larger doses and increased metabolism by this pathway may be responsible for the toxic effects noted at these high doses.

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METABOLISM: Excretion of 1,2-dichloroethane and metabolites is rapid; in animal studies, excretion was essentially complete 48 hours after acute exposure. Following inhalation exposure to labeled 1,2-dichloroethane, excretion of 1,2-dichloroethane was primarily in the form of metabolites (thiodiglycolic acid and thiodiglycolic acid sulfoxide) in the urine (84%), and as carbon dioxide (CO₂) in the exhaled air (7%). Following oral exposure to labeled 1,2-dichloroethane, the amount of radioactivity excreted by these routes was reduced, and a large percentage of the dose (29%) was excreted as unchanged 1,2-dichloroethane in the exhaled air. The increased exhalation of unchanged 1,2-dichloroethane may reflect the saturation of biotransformation enzymes.

PATHOGENICITY AND ACUTE INFECTIOUSNESS (ORAL, DERMAL, AND INHALATION): Not applicable.

ENDOCRINE DISRUPTOR: EDC is listed on U.S. EPA's Endocrine Disruptor Screening Program (EDSP) - Final Second List of Chemicals for Tier 1 Screening and Japan's Extended Tasks on Endocrine Disruption (EXTEND) - Selected Substances Subject to Reliability Assessment. Research has shown that EDC targets mouse testes and spermatogenesis in vivo and alters H3K4 patterns on Fasgrfl, Gtl2 and H19 paternal imprinted gene differentially methylated regions (DMRs).

NEUROTOXICITY: Breathing this material may cause central nervous system depression with symptoms including nausea, headache, dizziness, fatigue, drowsiness, or unconsciousness.

IMMUNOTOXICITY: Not available.

Hazard Not Otherwise Classified (HNOC)-Health

- May be harmful in contact with skin
- This material may be absorbed across the skin causing systemic effects

SECTION 12. ECOLOGICAL INFORMATION**ECOTOXICITY (EC, IC, and LC):**

Component:	Freshwater Fish:	Invertebrate Toxicity:	Algae Toxicity:	Other Toxicity:
Ethylene Dichloride	*LC50 fathead minnow: 136 mg/L 96 hr *LC50 bluegill sunfish: 430 mg/L 96 hr	*LC50 Daphnia magna: 218 mg/L 48 hr *EC50 Mysid shrimp: 113 mg/L 24 hr	*EC50 Pseudokirchneriella subcapitata (96 h) >433 mg/L *EC50 Desmodesmus subspicatus (96 h) =166 mg/L	*LC50 Eisenia foetida (48 h filter paper) =60 mg/cm ²

Invertebrate Toxicity:

LC50 Daphnia magna: 218 mg/L 48 hr

EC50 Mysid shrimp: 113 mg/L 24 hr

Other Toxicity:

LC50 Salamander (Ambystoma gracile): 2540 ug/L 9.5 hr

FATE AND TRANSPORT:

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PERSISTENCE: AIR: In the atmosphere this material will degrade by reaction with hydroxyl radicals which are formed photochemically in the atmosphere with a half-life of 1-2 months. SOIL: This material evaporates fairly rapidly into the atmosphere because of its high vapor pressure. Little adsorption to soil is expected based upon an experimental Koc of 33 for silt loam. WATER: Primary loss will be by evaporation into the atmosphere. The aquatic half-life ranges from hours to a few days depending on wind and mixing conditions. Chemical and biological degradation is expected to be very slow. Adsorption to sediment is not expected.

BIODEGRADATION: Various studies have shown that this material is not readily degradable when non-adapted, non-acclimated conditions were used. In contrast, some biodegradation occurred when adapted or induced microorganisms were used.

BIOCONCENTRATION: This material is not expected to bioconcentrate in fish due to its low octanol/water partition coefficient (Log Kow=1.48).

ADDITIONAL ECOLOGICAL INFORMATION: Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product into sewer systems without previously notifying the sewage treatment plant authority. For guidance, contact your local or regional regulatory water boards and/or other appropriate regulatory offices.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste from material:

Reuse or reprocess, if possible. Keep out of water supplies, sewers and soil. Dispose in accordance with all applicable regulations. May be subject to disposal regulations.

Container Management:

Dispose of container in accordance with applicable local, regional, national, and/or international regulations. Container rinsate must be disposed of in compliance with applicable regulations.

SECTION 14. TRANSPORT INFORMATION

LAND TRANSPORT

U.S. DOT 49 CFR 172.101:

UN NUMBER: UN1184
PROPER SHIPPING NAME: Ethylene dichloride
HAZARD CLASS/ DIVISION: 3 (6.1)
PACKING GROUP: II
LABELING REQUIREMENTS: 3, 6.1

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RQ (lbs.): RQ 100 lbs. (Ethylene Dichloride)**Special provisions for transport:** IB2, N36, T7, TP1.**Packaging Exceptions** 150.**Non-bulk Packaging:** 202.**Bulk Packaging:** 243.**ADDITIONAL INFORMATION:** Transport by vessel requires flashpoint on shipping papers.

* **NOTE:** When known to be preset at concentrations which result in the total quantity in a single package to meet or exceed RQ, include the applicable RQ information in the Shipping Description

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

* **NOTE:** Transport by vessel requires flashpoint on shipping papers.

UN NUMBER: UN1184**SHIPPING NAME:** Ethylene dichloride**CLASS OR DIVISION:** 3, 6.1**PACKING/RISK GROUP:** II**LABELING REQUIREMENTS:** 3, 6.1**MARITIME TRANSPORT (IMO / IMDG)**

* **NOTE:** Transport by vessel requires flashpoint on shipping papers.

UN NUMBER: UN 1184**PROPER SHIPPING NAME:** Ethylene Dichloride**HAZARD CLASS / DIVISION:** 3 (6.1)**Packing Group:** II**LABELING REQUIREMENTS:** 3 (6.1), Marine Pollutant**ADDITIONAL INFORMATION:** Flash Point - 55 °F (13 °C)**MARINE POLLUTANT:** Ethylene dichloride**AIR TRANSPORT (ICAO / IATA)****Status - ICAO/IATA:** Transport by passenger aircraft/rail and Cargo aircraft are limited**Special Instructions CAO:** IATA Certificate for shipping personnel is required**SECTION 15. REGULATORY INFORMATION****U.S. REGULATIONS****OSHA REGULATORY STATUS:**

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):

If a release is reportable under CERCLA section 103, notify the state emergency response commission and local

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emergency planning committee. In addition, notify the National Response Center at (800) 424-8802 or (202) 426-2675.

Component	U.S. DOT Hazardous Substances/ RQs	CERCLA Hazardous Substances / RQs	CERCLA Section 302 EHS EPCRA RQs	Section 302 Threshold Planning Quantity (TPQs)
Ethylene Dichloride 107-06-2 (99.99 - 100)	100 lbs(RQ)	100 lb(final RQ)	Not listed	Not Listed
Chloroacetaldehyde 107-20-0 (< 0.0003)	1000 lbs(RQ)	1000 lb(final RQ)	Not listed	Not Listed
1,1,2-Trichloroethane 79-00-5 (< 0.0002)	100 lbs(RQ)	100 lb(final RQ)	Not listed	Not Listed
Trichloroethylene 79-01-6 (< 0.0002)	100 lbs(RQ)	100 lb(final RQ)	Not listed	Not Listed

SARA EHS Chemical (40 CFR 355.30)

Not regulated.

EPCRA SECTIONS 311/312 HAZARD CATEGORIES (40 CFR 370.10):

Acute Health Hazard, Chronic Health Hazard, Fire Hazard, Extremely Hazardous

SARA HAZARD CATEGORIES ALIGNED WITH GHS (2018):

Physical Hazard - Flammable (gases, aerosols, liquids, or solids)

Health Hazard - Carcinogen

Health Hazard - Acute Toxin (any route of exposure)

Health Hazard - Skin Corrosion or Irritation

Health Hazard - Serious eye damage or eye irritation

Health Hazard - Specific Target Organ Toxicity (STOT) Single Exposure (SE)

Health Hazard - Germ Cell Mutagenicity

Health Hazard - Aspiration Hazard

EPCRA SECTION 313 (40 CFR 372.65):

The following chemicals are listed in 40 CFR 372.65 and may be subject to Community Right-to Know Reporting requirements.

Component	SARA 313 - Emission Reporting	SARA 313 PBT
Ethylene Dichloride 107-06-2 (99.99 - 100)	0.1% (de minimis concentration)	Not Listed
1,1,2-Trichloroethane 79-00-5 (< 0.0002)	1.0% (de minimis concentration)	Not Listed
Trichloroethylene 79-01-6 (< 0.0002)	0.1% (de minimis concentration)	Not Listed

DEPARTMENT OF HOMELAND SECURITY (DHS)- Chemical Facility Anti-Terrorism Standards (6 CFR 27):

No components in this material are regulated under DHS

OSHA PROCESS SAFETY (PSM) (29 CFR 1910.119):

The PSM standard may apply to processes which involve a flammable liquid or gas in a quantity of 10,000 pounds (4535.9 kg) or more. EDC is classified as a GHS Category 2 Flammable Liquid (Highly Flammable Liquid and Vapor).

Component	EPA RMP Toxic or Flammable TPQ	PSM - Highly Hazardous Substances, Toxics and Reactives	Flash Point
Ethylene Dichloride 107-06-2 (99.99 - 100)	Not Listed	Not Listed	13°C
Trichloroethylene 79-01-6 (< 0.0002)	Not Listed	Not Listed	90°Cclosed cup

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EPA'S CLEAN WATER AND CLEAN AIR ACTS:

Regulated as noted in table below.

Component	Clean Water Act - Priority Pollutants	CAA - ODS CLASS 1 AND CLASS 2	CAA - Volatile Organic Compounds (VOCs) in SOCM	CAA - HON Rule - Organic HAPs	CAA - Hazard Air Pollutants	CAA - Urban HAPs List (Integrated Urban Strategy)	SNAP - Substitutes for ODS	EPA RMP Toxic or Flammable TPQ
Ethylene Dichloride	Present	Not Listed	Present	Present	Present	Present	Not Listed	Not Listed
1,1,2-Trichloroethane	Present	Not Listed	Present	Present	Present	Not Listed	Not Listed	Not Listed
Trichloroethylene	Present	Not Listed	Present	Present	Present	Present	Not Listed	Not Listed

NATIONAL INVENTORY STATUS**U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA):**

Component	TSCA Inventory	TSCA ACTIVE LIST	TSCA 12(b)	TSCA - Section 4	TSCA - Section 5	TSCA - Section 6	TSCA - Section 8
Ethylene Dichloride 107-06-2	Listed	ACTIVE	Section 4 (0.1 %)	Recommended - 69th report (listed under Chemicals to which children living near hazardous waste sites may be exposed) 40 CFR 799.5115	Not Listed	Chemicals subject to Risk Evaluation	Listed
Chloroacetaldehyde 107-20-0	Listed	ACTIVE	Not Listed	Not listed	Not Listed	Not listed	Listed
1,1,2-Trichloroethane 79-00-5	Listed	ACTIVE	Not Listed	Not listed	Not Listed	Not listed	Listed
Trichloroethylene 79-01-6	Listed	ACTIVE	Section 5 (0.1 %) Section 6 (0.1 %)	Not listed	40 CFR 721.10851	Chemicals subject to Risk Evaluation	Not listed

TSCA 12(b): This product is subject to a TSCA Section 4 Enforceable Consent Agreement. OxyChem and others are to report as required under Section 12(b). (Ethylene dichloride 107-06-2).

CANADIAN CHEMICAL INVENTORY: All components of this product are listed on either the DSL or the NDSL.

Component	DSL	NDSL
Ethylene Dichloride 107-06-2 (99.99 - 100)	Listed	Not Listed
Chloroacetaldehyde 107-20-0 (< 0.0003)	Not Listed	Listed
1,1,2-Trichloroethane 79-00-5 (< 0.0002)	Listed	Not Listed
Trichloroethylene 79-01-6 (< 0.0002)	Listed	Not Listed

STATE REGULATIONS**California Proposition 65:**

This product contains a chemical known to the State of California to cause cancer, and/or birth defects, and/or other reproductive harm as listed under Proposition 65 State Drinking Water and Toxic Enforcement Act.

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Proposition 65 regulations should be consulted regarding warning requirements, if any, for the final product and whether any exposures to listed chemicals would be within a safe level (i.e., a No Significant Risk Level or NSRL for carcinogens, and/or a Maximum Allowable Dose Level or MADL for reproductive toxins).

Component	California Proposition 65 Cancer WARNING:	California Proposition 65 CRT List - Male reproductive toxin:	California Proposition 65 CRT List - Female reproductive toxin:	Massachusetts Right to Know Hazardous Substance List	Rhode Island Right to Know Hazardous Substance List
Ethylene Dichloride	Listed	Not Listed	Not Listed	Listed	Listed
Chloroacetaldehyde	Not Listed	Not Listed	Not Listed	Listed	Listed
1,1,2-Trichloroethane	Listed	Not Listed	Not Listed	Listed	Listed
Trichloroethylene	Listed developmental toxicity	Not Listed	Not Listed	Listed	Listed

Component	New Jersey Right to Know Hazardous Substance List	New Jersey Special Health Hazards Substance List	New Jersey - Environmental Hazardous Substance List	Pennsylvania Right to Know Hazardous Substance List	Pennsylvania Right to Know Special Hazardous Substances	Pennsylvania Right to Know Special Hazardous Substances	Pennsylvania Right to Know Environmental Hazard List
Ethylene Dichloride	0652	carcinogen; flammable - third degree; mutagen	Listed	Listed	Present	Present	Present
Chloroacetaldehyde	0372	Not Listed	Not Listed	Listed	Not Listed	Not Listed	Present
1,1,2-Trichloroethane	1889	carcinogen	Listed	Listed	Not Listed	Not Listed	Present
Trichloroethylene	1890	carcinogen; mutagen	Listed	Listed	Not Listed	Not Listed	Present

CANADIAN REGULATIONS

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

Component	Canada - CEPA - Schedule I - List of Toxic Substances	Canada - NPRI	Canada - CEPA - 2010 Greenhouse Gases (GHG) Subject to Mandatory Reporting	CANADIAN CHEMICAL INVENTORY:	NDSL:
Ethylene Dichloride 107-06-2 (99.99 - 100)	Present (036) Present (065)	Part 1, Group 1 Substance Part 5, Individual Substance Part 4 Substance	Not Listed	Listed	Not Listed
Chloroacetaldehyde 107-20-0 (< 0.0003)	Not listed	Not Listed	Not Listed	Not Listed	Present
1,1,2-Trichloroethane 79-00-5 (< 0.0002)	Present (065)	Part 1, Group 1 Substance Part 4 Substance	Not Listed	Listed	Not Listed
Trichloroethylene 79-01-6 (< 0.0002)	Present (045) Present (065)	Part 1, Group 1 Substance Part 4 Substance	Not Listed	Listed	Not Listed

SECTION 16. OTHER INFORMATION

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Rev. Date: 16-Mar-2020

Prepared by: Occidental Chemical Corporation - HES&S Product Stewardship Department

Rev. Date: 16-Mar-2020

Reason for Revision:

- Change of company physical address: SEE SECTION 1
- Added synonym(s): SEE SECTION 1
- Updated Product Use information: SEE SECTION 1
- Updated Uses Advised Against information: SEE SECTION 1
- Modified the Emergency Overview information: SEE SECTION 2
- GHS symbol removed: SEE SECTION 2
- Revised GHS Information: SEE SECTION 2
- Modified Fire Fighting Measure Recommendations: SEE SECTION 5
- Revised Accidental Release Measures: SEE SECTION 6
- Revised Handling and Storage Recommendations: SEE SECTION 7
- Modified Exposure Limit information: SEE SECTION 8
- Added an explanation statement for "Ceiling Value" exposure levels: SEE SECTION 8
- Added Hygiene Measures SEE SECTION 8
- Requirements for emergency eyewash and shower added: SEE SECTION 8
- Updated Physical and Chemical Properties. SEE SECTION 9
- Toxicological Information has been revised: SEE SECTION 11
- Added Health Hazards Not Otherwise Classified: Section 2 and 11
- GHS Classification Changes in SECTION 11
- SDS format change / enhancement to Section 11: Toxicological Information
- Updated Transportation Information: SEE SECTION 14
- Regulatory Information Changes: SEE SECTION 15
- Revised California Proposition 65 Statement: SEE SECTION 15
- Added SARA Hazard Categories Aligned with GHS (2018): SEE SECTION 15
- Added LOLI tables such as EPA'S Clean Water / Air Act, TSCA status, DHS, PSM, EPCRA, CERCLA, Federal Canadian: SEE SECTION 15
- WHMIS Classifications were removed from format: SEE SECTION 15
- Updated TSCA Status Table: SEE SECTION 15
- Removed NFPA/HMIS ratings from format: SEE SECTION 16

IMPORTANT:

The information presented herein, while not guaranteed, was prepared by technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTY OR GUARANTY OF ANY OTHER KIND, EXPRESSED OR IMPLIED, IS MADE REGARDING PERFORMANCE, SAFETY, SUITABILITY, STABILITY OR OTHERWISE. This information is not intended to be all-inclusive as to the manner and conditions of use, handling, storage, disposal and other factors that may involve other or additional legal, environmental, safety or performance considerations, and Occidental Chemical Corporation assumes no liability whatsoever for the use of or reliance upon this information. While our technical personnel will be happy to respond to questions, safe handling and use of the product remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as, a recommendation to infringe any existing patents or to violate any federal, state, local or foreign laws.

OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Safety Data Sheet

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available to your employees.

End of Safety Data Sheet