SAFETY DATA SHEET

M5855 - ANSI - EN

ETHYLENE DICHLORIDE (EDC) FINISHED AND TECHNICAL GRADE

SDS No.: M5855 **SDS Revision Date:** 19-Feb-2015

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Company Identification:	Occidental Chemical Corporation 5005 LBJ Freeway P.O. Box 809050 Dallas, TX 75380-9050 1-800-752-5151
24 Hour Emergency Telephone Number:	1-800-733-3665 or 1-972-404-3228 (USA); 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, EDC/Cl2 Equivalent
Product Use:	Process cleaner
Uses Advised Against:	None identified.

2. HAZARDS IDENTIFICATION

ETHYLENE DICHLORIDE (EDC) FINISHED AND TECHNICAL GRADE

SDS No.: M5855 **SDS Revision Date:** 19-Feb-2015

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

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EMERGENCY OVERVIEW:

Color: Colorless
Physical state Liquid
Appearance: Clear
Odor: Mildly sweet odor

Signal Word: **DANGER**

MAJOR HEALTH HAZARDS: TOXIC IF INHALED. MAY CAUSE DROWSINESS OR DIZZINESS. HARMFUL IF SWALLOWED. MAY BE ABSORBED THROUGH THE SKIN. CAUSES SKIN IRRITATION. CAUSES EYE IRRITATION. CAUSES DAMAGE TO CENTRAL NERVOUS SYSTEM (CNS), LIVER, KIDNEY, AND ADRENAL GLAND. CAUSES DAMAGE TO LIVER, CENTRAL NERVOUS SYSTEM (CNS) THROUGH PROLONGED OR REPEATED EXPOSURE. MAY CAUSE DAMAGE TO KIDNEYS THROUGH PROLONGED OR REPEATED EXPOSURE. SUSPECTED OF CAUSING GENETIC DEFECTS. MAY CAUSE CANCER.

PHYSICAL HAZARDS: HIGHLY FLAMMABLE LIQUID AND VAPOR.

AQUATIC TOXICITY: HARMFUL TO AQUATIC LIFE.

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

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

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GHS 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 - INHALATION:	Category 3 - Toxic if inhaled
GHS: ACUTE TOXICITY - ORAL:	Category 4 - Harmful if swallowed.
GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE):	Category 1 - Causes damage to: CNS, Liver, Kidney, and Adrenal Glands

GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE):	Category 3 - May cause drowsiness or dizziness
GHS: TARGET ORGAN TOXICITY (REPEATED EXPOSURE):	Category 1 - Causes damage to liver, central nervous system (CNS) through prolonged or repeated exposure
GHS: TARGET ORGAN TOXICITY (REPEATED EXPOSURE):	Category 2 - May cause damage to kidneys through prolonged or repeated exposure
GHS: CARCINOGENICITY:	Category 1B - May cause cancer.
GHS: GERM CELL MUTAGENICITY:	Category 2 - Suspected of causing genetic defects
GHS: HAZARDOUS TO AQUATIC ENVIRONMENT - ACUTE HAZARD:	Category 3 - Harmful to aquatic life

UNKNOWN ACUTE TOXICITY:
Not applicable. This product was tested as a whole. This information only pertains to untested mixtures.

GHS SYMBOL:
Flame, Skull and Crossbones, Health hazards, Exclamation mark

GHS SIGNAL WORD: **DANGER**

GHS HAZARD STATEMENTS:

GHS - Physical Hazard Statement(s)
Highly flammable liquid and vapor

GHS - Health Hazard Statement(s)
Toxic if inhaled
Harmful if swallowed
Causes skin irritation
Causes eye irritation
May cause drowsiness or dizziness
Causes damage to organs: (Central Nervous System(CNS), Liver, Kidneys, Adrenals)
Causes damage to organs through prolonged or repeated exposure: (Liver, Central Nervous System)
May cause damage to Renal System (Kidneys) through prolonged or repeated exposure
May cause cancer
Suspected of causing genetic defects

GHS - Environmental Hazard Statement(s)
Harmful to aquatic life

GHS - Precautionary Statement(s) - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
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 (electrical equipment, ventilating equipment, lighting equipment, etc.)
Use only non-sparking tools
Take precautionary measures against static discharge
Do not breathe mist, vapors, or spray
Wear protective gloves, protective clothing, eye, and face protection
Use personal protective equipment as required
Wash thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Avoid release to the environment

GHS - Precautionary Statement(s) - Response
In case of fire: use dry chemical, carbon dioxide (CO2), foam, water fog or spray to extinguish
IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower
IF ON SKIN: Gently wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off immediately all contaminated clothing and wash it before reuse
IF INHALED: Remove person to fresh air and keep comfortable for breathing
Call a POISON CENTER or doctor/physician
Specific treatment (see Section 4 of the safety data sheet and/or the First Aid information on the product label)
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
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
IF exposed or concerned: call a POISON CENTER or doctor/physician

GHS - Precautionary Statement(s) - Storage
Keep container tightly closed
Store in a well-ventilated place. Keep cool
Store locked up

GHS - Precautionary Statement(s) - Disposal
Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations

Hazards Not Otherwise Classified (HNOC)
May be fatal if swallowed
This material may be readily absorbed through the skin

See Section 11: TOXICOLOGICAL INFORMATION

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: EDC, 1,2-Dichloroethane, EDC/Cl2 Equivalent

Component	Percent [%]	CAS Number
Ethylene Dichloride	99 - 100	107-06-2

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) :.

Acute Symptoms/Effects: Listed below.
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.

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.

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.

5. FIRE-FIGHTING MEASURES

Fire Hazard: Moderate fire hazard. Vapor/air mixtures are explosive. The vapor is heavier than air. Vapors or gases may ignite at distant sources and flash back.

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

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
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 ºF (13 ºC) (TCC)
Method:	TCC - Tag Closed Cup
Auto-ignition Temperature:	775 °F (413 °C)

GHS: PHYSICAL HAZARDS:
- Flammable Liquid - Cat. 2 Highly Flammable

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.

Methods and Materials for Containment and Cleaning Up:
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.

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.

7. HANDLING AND STORAGE

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 MSDS. Wash thoroughly after handling. Do not eat, drink or smoke in areas where this material is used.

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).

Incompatibilities/ Materials to Avoid:
Acids. Bases. Alkali metals such as aluminum. Amines. Oxidizing agents. High temperature sources. Pure oxygen. Strong UV light (welding arcs).

GHS: PHYSICAL HAZARDS:
- Flammable Liquid - Cat. 2 Highly Flammable

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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

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

NON-REGULATORY EXPOSURE LIMIT(S): Listed below for the product components that have non-regulatory occupational exposure limits (OEL's).
- *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.

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 eye wash 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 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

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Liquid
Appearance:	Clear
Color:	Colorless
Odor:	Mildly sweet odor
Odor Threshold [ppm]:	No data available.
Molecular Weight:	98.96
Molecular Formula:	C2H4Cl2
Decomposition Temperature:	No data available
Boiling Point/Range:	182.3 ºF (83.5 ºC)
Freezing Point/Range:	-31 F (-35 C).
Melting Point/Range:	Not applicable to liquids
Vapor Pressure:	62.5 mmHg @ 20 ºC
Vapor Density (air=1):	3.42
Relative Density/Specific Gravity (water=1):	1.25
Water Solubility:	0.84 %

pH:	Not applicable
VOC Content (%):	100 %
Volatility:	100 %
Evaporation Rate (ether=1):	0.3
Partition Coefficient (n-octanol/water):	Log Kow = 1.45 - 1.48
Flash point:	55 ºF (13 ºC) (TCC)
Method:	TCC - Tag Closed Cup
Flammability (solid, gas):	Highly flammable
Lower Flammability Level (air):	6.2 %
Upper Flammability Level (air):	15.9 %
Auto-ignition Temperature:	775 °F (413 °C)
Viscosity:	No data available

10. STABILITY AND REACTIVITY

Reactivity: Not reactive under normal temperatures and pressures.

Chemical Stability: Stable at 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.

Incompatibilities/ Materials to Avoid:
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.

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA:

PRODUCT TOXICITY DATA: ETHYLENE DICHLORIDE FINISHED GRADE

LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
770 mg/kg (Rat)	4890 mg/kg (Rabbit)	8000 mg/m^3 (4 hr. - Rat)

COMPONENT TOXICITY DATA:

Note: The component toxicity data is populated by the LOLI database and may differ from the product toxicity data given.

Component	LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
Ethylene Dichloride 107-06-2	680 mg/kg (Rat)	4890 mg/kg (Rabbit)	4 mg/L (6 hr-Rat)

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POTENTIAL HEALTH EFFECTS:

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 to cause serious acute systemic poisoning.

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 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.

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 sever 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.

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.

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.

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GHS HEALTH HAZARDS:

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

GHS: ACUTE TOXICITY - INHALATION: Category 3 - Toxic if inhaled.

Skin Absorbent / Dermal Route? Yes.

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

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

GHS: CARCINOGENICITY:
Category 1B - May cause cancer.

Component	NTP:	IARC (GROUP 1):	IARC (GROUP 2):	OSHA:
Ethylene Dichloride	Reasonably Anticipated To Be A Human Carcinogen	Not listed	Group 2	Listed

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure):
Category 1 - Central Nervous System (CNS), Liver, Kidney, Adrenals
Category 3 - Narcotic Effects

SPECIFIC TARGET ORGAN TOXICITY (Repeated or Prolonged Exposure):
Category 1 - Liver, Kidneys, Central Nervous System (CNS)
Category 2 - Kidneys

MUTAGENIC DATA:
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.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

Freshwater Fish Toxicity:
LC50 fathead minnow: 136 mg/L 96 hr
LC50 bluegill sunfish: 430 mg/L 96 hr

Invertebrate Toxicity:
LC50 Daphnia magna: 218 mg/L 48 hr
EC50 Mysid shrimp: 113 mg/L 24 hr

Algae Toxicity:
EC50 (photosenthesis) Diatom (Skeletonema costatum): >433 mg/L 96 hr
EC50 Algae: 189 mg/L 72 hr

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

FATE AND TRANSPORT:

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.

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.

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.

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.

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
RQ (lbs):	RQ 100 lbs. (Ethylene Dichloride) RQ 10 Lbs. (Chloroform) RQ 1 Lbs. (Vinyl chloride) RQ 10 Lbs. (Ethylene oxide)

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

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

Component	CERCLA Reportable Quantities:
Ethylene Dichloride	1 lb (final RQ) 100 lb (final RQ)

SARA EHS Chemical (40 CFR 355.30)
Not regulated

EPCRA SECTIONS 311/312 HAZARD CATEGORIES (40 CFR 370.10):
Fire Hazard, Acute Health Hazard, Chronic Health 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	Status:
Ethylene Dichloride	0.1 %

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.

NATIONAL INVENTORY STATUS

U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA): All components are listed or exempt.

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.

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.

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	New Jersey Right to Know Hazardous Substance List	New Jersey Special Health Hazards Substance List
Ethylene Dichloride 107-06-2	Listed	Not Listed	Not Listed	Listed	0652	carcinogen; flammable - third degree; mutagen

Component	New Jersey - Environmental Hazardous Substance List	Pennsylvania Right to Know Hazardous Substance List	Pennsylvania Right to Know Special Hazardous Substances	Pennsylvania Right to Know Environmental Hazard List	Rhode Island Right to Know Hazardous Substance List
Ethylene Dichloride 107-06-2	Listed	Listed	Present	Present	Listed

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

WHMIS - Classifications of Substances:
• B2 - Flammable Liquid
• D1A - Poisonous and Infectious Material; Materials causing immediate and serious toxic effects - Very toxic material
• D2A - Poisonous and Infectious Material; Materials causing other toxic effects - Very toxic material
• D2B - Poisonous and Infectious Material; Materials causing other toxic effects - Toxic material

16. OTHER INFORMATION

Prepared by: OxyChem Corporate HESS - Product Stewardship

Rev. Date: 19-Feb-2015

HMIS: (SCALE 0-4) (Rated using National Paint & Coatings Association HMIS: Rating Instructions, 2nd Edition)

Health Rating: 2* **Flammability Rating:** 3 **Reactivity Rating:** 0

NFPA 704 - Hazard Identification Ratings (SCALE 0-4)

Health Rating: 2 **Flammability:** 3 **Reactivity Rating:** 0

Reason for Revision:
• Updated the (M)SDS header
• Changed the SDS format to meet the GHS requirements of the revised 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200}
• Updated 24 Hour Emergency Telephone Number: SEE SECTION 1
• Product Identifier has been added or updated: SEE SECTION 1
• Updated Uses Advised Against information: SEE SECTION 1
• Added OSHA Status: SEE SECTION 2
• Emergency Overview was revised: SEE SECTION 2
• Added GHS Information: SEE SECTION 2
• Added synonym(s): SEE SECTION 3
• Updated First Aid Measures: SEE SECTION 4
• Modified Fire Fighting Measure Recommendations: SEE SECTION 5
• Revised Accidental Release Measures: SEE SECTION 6
• Revised Handling and Storage Recommendations: SEE SECTION 7
• Revised Exposure Controls/Personal Protection information: SEE SECTION 8
• Updated Physical and Chemical Properties. SEE SECTION 9
• Stability and Reactivity recommendations: SEE SECTION 10
• Toxicological Information has been revised: SEE SECTION 11
• Ecological Information has been modified: SEE SECTION 12
• Updated Disposal Considerations. SEE SECTION 13
• Updated Transportation Information: SEE SECTION 14
• Regulatory Information Changes: SEE SECTION 15
• Added SDS Revision Date: SEE SECTION 16
• Added/Updated Revision Log: SEE SECTION 16

IMPORTANT:
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ETHYLENE DICHLORIDE (EDC) FINISHED AND TECHNICAL GRADE

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 available to your employees

End of Safety Data Sheet