SAFETY DATA SHEET: 1,2-DICHLOROETHANE

1. IDENTIFICATION

Product Name: 1,2-DICHLOROETHANE
Synonyms: Ethylene dichloride; EDC
Formula and Formula Weight: CICH2CH2Cl  98.96
Integra numbers beginning with: D584.10
Recommended Use: Commercial/industrial use
Restrictions on Use: No information available

INTEGRA Chemical Company
24 Hour Emergency Response: CHEMTREC 800-424-9300 (Outside USA 703-527-3887)
1216 6th Ave N
Kent WA 98032
Phone: 253-479-7000

2. HAZARDS IDENTIFICATION

Signal Word: DANGER

OSHA Classification: Hazard Category: Hazard Statement:
Acute Toxicity - Oral 4 Harmful if swallowed.
Acute Toxicity - Inhalation 3 Toxic if inhaled.
Skin Corrosion/Irritation 2 Causes skin irritation.
Eye Damage/Irritation 2A Causes serious eye irritation.
Carcinogenicity 1B May cause cancer.
Specific Target Organ Toxicity (single exposure) 3 May cause respiratory irritation.
Flammable Liquids 2 Highly flammable liquid and vapor.

Precautionary Statements

Prevention:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat, sparks, open flames, hot surfaces. – No smoking.
Keep container tightly closed.
Ground, bond container and receiving equipment.
Use explosion-proof electrical, ventilating, lighting, ..., equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing fume, gas, mist, vapors, spray.
Wash 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.

Response
If swallowed: Call a poison center, doctor if you feel unwell.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water, shower.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Call a poison center, doctor
Specific treatment (see first aid section on this label)
Rinse mouth.
If skin irritation occurs: Get medical advice, attention.
If eye irritation persists: Get medical advice, attention.
Take off contaminated clothing and wash it before reuse.

Storage
Store in a well ventilated place. Keep cool. Keep container tightly closed.
Store locked up.

Disposal
Dispose of contents, container in accordance with all governmental regulations.
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Synonyms</th>
<th>CAS #</th>
<th>% Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Dichloroethane</td>
<td>Ethylene dichloride; EDC</td>
<td>00107-06-2</td>
<td>100</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Inhalation: Remove person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult administer oxygen. Seek medical attention.

Eye Contact: Flush eyes with water for at least 15 minutes. Seek immediate medical attention.

Skin Contact: Remove contaminated clothing. Flush skin with plenty of water. Seek medical attention if irritation develops.

Ingestion: Aspiration hazard. If swallowed, do not induce vomiting. Rinse mouth and give victim water or milk. Never give anything by mouth to an unconscious person. Seek immediate medical attention. Keep victim's head below hips to prevent aspiration of vomit should spontaneous vomiting occur.

Additional notes: Symptoms and effects include irritation of eyes, skin, respiratory tract; corneal opacity; central nervous system depression; nausea, vomiting; dermatitis; liver, kidney, cardiovascular system damage; lung edema; (potential occupational carcinogen)

5. FIRE-FIGHTING MEASURES

Extinguishing Media: Carbon dioxide, dry chemical or alcohol foam. Water may be ineffective.

Special Equipment and Precautions: Use water to cool nearby containers and structures. Wear full protective equipment, including suitable respiratory protection.

Specific Hazards: Vapors may flow along surfaces to distant ignition sources and flash back.


6. ACCIDENTAL RELEASE MEASURES

Spill Procedures: Remove all potential ignition sources. Prevent spread of spill. Wear full protective equipment including suitable respiratory protection. Absorb with sand or inert material. Place into suitable container for disposal. Prevent material from entering drains and environment.

7. HANDLING AND STORAGE

Incompatible Materials: Incompatible with strong bases and strong oxidizers. Ammonia, metallic powders, aluminum, magnesium, potassium, sodium.

Storage and Handling: Store locked up in a cool, dry, well-ventilated flammable liquids storage area or cabinet away from incompatible materials. Keep away from heat and ignition sources. Keep containers tightly closed and protect them from physical damage. Bond and ground containers when transferring liquid. Use only non-sparking tools and take precautionary measures against static discharge. No smoking. Obtain special instructions before use.

Skin/Eye Protective Equipment: Safety goggles, protective clothing and gloves appropriate for the risk of exposure. Viton, polyvinyl alcohol or equivalent gloves and equipment are recommended.

Facilities storing or utilizing this material should have readily accessible eyewash stations and safety showers. Select respirators and other safety equipment in accordance with regulations and based upon the particular conditions of use and risk of exposure. Always use safe chemical-handling and good industrial hygiene practices.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

OSHA & ACGIH Exposure Limits:

<table>
<thead>
<tr>
<th>Component</th>
<th>OSHA TWA</th>
<th>OSHA Ceiling</th>
<th>ACGIH TWA</th>
<th>ACGIH TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Dichloroethane</td>
<td>50 ppm</td>
<td>100 ppm</td>
<td>10 ppm</td>
<td>40 mg/m3</td>
</tr>
</tbody>
</table>

Engineering Controls: Use general or local exhaust ventilation to meet TLV and PEL requirements.

Respiratory Protection: Respiratory protection required if airborne concentrations exceed PEL or TLV. Use a NIOSH approved chemical cartridge respirator with an organic vapor cartridge. Where vapor concentration exceeds or is likely to exceed 1 ppm an approved self-contained breathing apparatus or air line respirator, with a full facepiece is required.

Skin/Eye Protective Equipment: Safety goggles, protective clothing and gloves appropriate for the risk of exposure. Viton, polyvinyl alcohol or equivalent gloves and equipment are recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear colorless viscous liquid

Odor: Mildly sweet odor

Odor Threshold: 11.2 ppm

pH: Not available
Melting/Freezing Point: -36 °C
Initial Boiling Point and Boiling Range: 84 °C
Flash Point: 13 °C
Evaporation Rate: 6.5 Butyl Acetate=1
Flammability: Flammable
Flammable or Explosive Upper: 16

Limits (% by volume in air)
   Lower: 6.2
Vapor Pressure: 65 mm Hg@20°C
Vapor Density: 3.4
Relative Density: 1.25 Water=1
Solubility: Slightly soluble (approx 0.8% in water)
Partition Coefficient: n-octanol/water 1.48
Auto-Ignition Temperature: 412 °C
Decomposition Temperature: Not available
Viscosity: Not available

10. STABILITY AND REACTIVITY

Reactivity: No information available
Stability: Stable
Possibility of Hazardous Reactions: Hazardous polymerization will not occur; explosive vapor/air mixtures may form
Conditions to Avoid: Heat, sparks and open flame. Extreme temperatures and exposure to direct sunlight.
Incompatibles: Incompatible with strong bases and strong oxidizers. Ammonia, metallic powders, aluminum, magnesium, potassium, sodium.

11. TOXICOLOGICAL INFORMATION

Effects of Over Exposure:
Inhalation: Harmful if inhaled. Symptoms include respiratory tract irritation, coughing, dizziness, dullness and headache. High concentrations can produce central nervous system depression, narcosis and unconsciousness. Severe inhalation exposure may be fatal.
Skin Contact: May cause skin irritation. Prolonged contact may cause dermatitis. Material may be absorbed through the skin in harmful amounts if liquid contact is prolonged.
Eye Contact: May irritate or burn the eyes. Corneal opacity.
Ingestion: Harmful if swallowed. Ingestion may cause headache, dizziness, nausea, vomiting, gastrointestinal irritation. Ingestion may be fatal.
Chronic Effects: Liver damage, kidney damage. Damage to cardiovascular system, lungs, blood, central nervous system.
Target Organs: Eyes, skin, respiratory system, liver, kidneys, central nervous system.
Additional Effects: May aggravate pre-existing kidney and liver diseases, respiratory disorders, heart disorders, circulatory and blood disorders, alcoholism. Potential occupational carcinogen.
Reproductive Effects: This material may be mutagenic.
Carcinogenicity: 1,2-Dichloroethane is listed by the NTP as Anticipated Human Carcinogen and by the IARC as Group 2B, Possible Human Carcinogen.

Toxicity Data:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Route of Exposure</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Dichloroethane</td>
<td>Irritation (skin, rabbit)</td>
<td>Mild: 500 mg/24 hr</td>
</tr>
<tr>
<td></td>
<td>LD50 (oral, rat)</td>
<td>500 mg/kg</td>
</tr>
<tr>
<td></td>
<td>LD50 (skin, rabbit)</td>
<td>2800 mg/kg</td>
</tr>
<tr>
<td></td>
<td>LD50 (oral, mouse)</td>
<td>413 mg/kg</td>
</tr>
</tbody>
</table>

12. ECOLOGICAL INFORMATION

Aquatic Toxicity Data: Terrestrial Toxicity Data:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Value</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Dichloroethane</td>
<td>LC50 Rainbow trout: 225 mg/L - 96h</td>
<td>No information available</td>
</tr>
</tbody>
</table>

Persistence and degradability: Not readily biodegradable
Bioaccumulative potential: No information available
Mobility in soil: No information available
Other adverse effects: No information available

13. DISPOSAL CONSIDERATIONS

Disposal Procedures: Dispose of material and containers in accordance with all local, state and federal regulations.

14. TRANSPORTATION INFORMATION

This product is a regulated material for domestic ground transportation, per CFR Title 49.

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>UN Number</td>
<td>UN1184</td>
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<tr>
<td>Proper Shipping Name</td>
<td>Ethylene dichloride</td>
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<tr>
<td>Packing Group</td>
<td>II</td>
</tr>
<tr>
<td>Hazard Class</td>
<td>3</td>
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</tbody>
</table>
Environmental hazards: No information available
Special precautions: No information available
Bulk transport: No information available

15. REGULATORY INFORMATION

1,2-Dichloroethane is listed in the TSCA inventory and in SARA 313.

16. OTHER INFORMATION

OSHA SDS #: 25540 rev 101  3/27/2015

NE = Not established, NA = Not applicable or Not available

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***** END OF SDS *****