

## SAFETY DATA SHEET

Creation Date 04-Feb-2010

Revision Date 18-Jan-2018

Revision Number 6

### 1. Identification

**Product Name** 1,2-Dichloroethane

**Cat No. :** E175-4; E175-20; E175-500; E175RS-19; E175RS-50; E190-4

**CAS-No** 107-06-2

**Synonyms** Ethylene dichloride; Ethylene chloride (Certified ACS/Spectranalyzed)

**Recommended Use** Laboratory chemicals.

**Uses advised against** Not for food, drug, pesticide or biocidal product use

#### Details of the supplier of the safety data sheet

##### Company

Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

##### **Emergency Telephone Number**

CHEMTREC®, Inside the USA: 800-424-9300  
CHEMTREC®, Outside the USA: 001-703-527-3887

### 2. Hazard(s) identification

#### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

|   |             |
|---|-------------|
| Flammable liquids   | Category 2  |
| Acute oral toxicity   | Category 4  |
| Acute Inhalation Toxicity - Vapors                                | Category 3  |
| Skin Corrosion/Irritation   | Category 2  |
| Serious Eye Damage/Eye Irritation                                 | Category 2  |
| Carcinogenicity   | Category 1B |
| Specific target organ toxicity (single exposure)                  | Category 3  |
| Target Organs - Respiratory system, Central nervous system (CNS). |             |
| Specific target organ toxicity - (repeated exposure)              | Category 2  |
| Target Organs - Kidney, Liver, Heart, Blood.                      |             |

#### Label Elements

##### **Signal Word**

Danger

##### **Hazard Statements**

Highly flammable liquid and vapor  
Harmful if swallowed  
Causes skin irritation  
Causes serious eye irritation

Toxic if inhaled  
May cause respiratory irritation  
May cause drowsiness or dizziness  
May cause cancer  
May cause damage to organs through prolonged or repeated exposure



### Precautionary Statements

#### Prevention

Obtain special instructions before use  
Do not handle until all safety precautions have been read and understood  
Use personal protective equipment as required  
Wash face, hands and any exposed skin thoroughly after handling  
Do not eat, drink or smoke when using this product  
Use only outdoors or in a well-ventilated area  
Wear eye/face protection  
Do not breathe dust/fume/gas/mist/vapors/spray  
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  
Keep cool

#### Response

IF exposed or concerned: Get medical attention/advice

#### Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
Call a POISON CENTER or doctor/physician

#### Skin

If skin irritation occurs: Get medical advice/attention  
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
Wash contaminated clothing before reuse

#### Eyes

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: Call a POISON CENTER or doctor/physician if you feel unwell  
Rinse mouth

#### Fire

In case of fire: Use CO<sub>2</sub>, dry chemical, or foam for extinction

#### Storage

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

#### Disposal

Dispose of contents/container to an approved waste disposal plant

#### Hazards not otherwise classified (HNOC)

**WARNING.** Cancer - <https://www.p65warnings.ca.gov/>.

## 3. Composition/Information on Ingredients

| Component           | CAS-No   | Weight % |
|---------------------|----------|----------|
| Ethylene dichloride | 107-06-2 | >95      |

#### 4. First-aid measures

|  |   |
|--|---|
| <b>General Advice</b>                      | Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.   |
| <b>Eye Contact</b>                         | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.   |
| <b>Skin Contact</b>                        | Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.   |
| <b>Inhalation</b>                          | Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required. |
| <b>Ingestion</b>                           | Do not induce vomiting. Call a physician or Poison Control Center immediately.  |
| <b>Most important symptoms and effects</b> | Breathing difficulties. May cause cardiac arrhythmia. May cause central nervous system depression: Symptoms may include tightness in the chest, flushing, headache, nausea, vomiting, respiratory depression, weakness, irregular heartbeat, abdominal pain, convulsions, and shock                                   |
| <b>Notes to Physician</b>                  | Treat symptomatically   |

#### 5. Fire-fighting measures

|   |   |
|---|---|
| <b>Suitable Extinguishing Media</b>     | Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray. |
| <b>Unsuitable Extinguishing Media</b>   | Water may be ineffective  |
| <b>Flash Point</b>                      | 13 °C / 55.4 °F   |
| <b>Method -</b>                         | No information available  |
| <b>Autoignition Temperature</b>         | 440 °C / 824 °F   |
| <b>Explosion Limits</b>                 |   |
| <b>Upper</b>                            | 15.9 vol %  |
| <b>Lower</b>                            | 6.2 vol %   |
| <b>Sensitivity to Mechanical Impact</b> | No information available  |
| <b>Sensitivity to Static Discharge</b>  | No information available  |

#### Specific Hazards Arising from the Chemical

Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Keep product and empty container away from heat and sources of ignition. Thermal decomposition can lead to release of irritating gases and vapors.

#### Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO<sub>2</sub>) Hydrogen chloride gas Phosgene

#### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

#### NFPA

**Health**  
3

**Flammability**  
3

**Instability**  
0

**Physical hazards**  
N/A

**6. Accidental release measures**

**Personal Precautions** Use personal protective equipment. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

**Environmental Precautions** Should not be released into the environment. See Section 12 for additional ecological information.

**Methods for Containment and Clean Up** Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

**7. Handling and storage**

**Handling** Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not ingest. Use only under a chemical fume hood. Do not breathe vapors or spray mist. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition.

**8. Exposure controls / personal protection**

**Exposure Guidelines**

| Component           | ACGIH TLV   | OSHA PEL  | NIOSH IDLH   | Mexico OEL (TWA)                         |
|---------------------|-------------|---|--|--|
| Ethylene dichloride | TWA: 10 ppm | (Vacated) TWA: 1 ppm<br>(Vacated) TWA: 4 mg/m <sup>3</sup><br>Ceiling: 100 ppm<br>(Vacated) STEL: 2 ppm<br>(Vacated) STEL: 8 mg/m <sup>3</sup><br>TWA: 50 ppm | IDLH: 50 ppm<br>TWA: 1 ppm<br>TWA: 4 mg/m <sup>3</sup><br>STEL: 2 ppm<br>STEL: 8 mg/m <sup>3</sup> | TWA: 10 ppm<br>TWA: 40 mg/m <sup>3</sup> |

*Legend*

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

**Engineering Measures** Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

**Personal Protective Equipment**

**Eye/face Protection** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Tightly fitting safety goggles. Face-shield.

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure.

**Respiratory Protection** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

|   |   |
|---|---|
| <b>Physical State</b>                         | Liquid  |
| <b>Appearance</b>                             | Colorless                                     |
| <b>Odor</b>                                   | sweet   |
| <b>Odor Threshold</b>                         | 400 ppm                                       |
| <b>pH</b>                                     | No information available                      |
| <b>Melting Point/Range</b>                    | -35 °C / -31 °F                               |
| <b>Boiling Point/Range</b>                    | 81 - 85 °C / 177.8 - 185 °F                   |
| <b>Flash Point</b>                            | 13 °C / 55.4 °F                               |
| <b>Evaporation Rate</b>                       | 6.5 (Butyl Acetate = 1.0)                     |
| <b>Flammability (solid,gas)</b>               | Not applicable                                |
| <b>Flammability or explosive limits</b>       |   |
| <b>Upper</b>                                  | 15.9 vol %                                    |
| <b>Lower</b>                                  | 6.2 vol %                                     |
| <b>Vapor Pressure</b>                         | 65 mmHg @ 29 °C                               |
| <b>Vapor Density</b>                          | 3.4   |
| <b>Specific Gravity</b>                       | 1.250   |
| <b>Solubility</b>                             | Insoluble in water                            |
| <b>Partition coefficient; n-octanol/water</b> | No data available                             |
| <b>Autoignition Temperature</b>               | 440 °C / 824 °F                               |
| <b>Decomposition Temperature</b>              | No information available                      |
| <b>Viscosity</b>                              | 0.8 mPa s at 20 °C                            |
| <b>Molecular Formula</b>                      | C <sub>2</sub> H <sub>4</sub> Cl <sub>2</sub> |
| <b>Molecular Weight</b>                       | 98.96   |

## 10. Stability and reactivity

|   |   |
|---|---|
| <b>Reactive Hazard</b>                  | None known, based on information available  |
| <b>Stability</b>                        | Stable under normal conditions.   |
| <b>Conditions to Avoid</b>              | Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition. |
| <b>Incompatible Materials</b>           | Strong oxidizing agents, Bases, Alkali metals   |
| <b>Hazardous Decomposition Products</b> | Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Hydrogen chloride gas, Phosgene              |
| <b>Hazardous Polymerization</b>         | Hazardous polymerization does not occur.  |
| <b>Hazardous Reactions</b>              | None under normal processing.   |

## 11. Toxicological information

### Acute Toxicity

#### Product Information

#### Component Information

| Component           | LD50 Oral                                | LD50 Dermal           | LC50 Inhalation                              |
|---------------------|--|-----------------------|--|
| Ethylene dichloride | 625 mg/kg ( Rat )<br>413 mg/kg ( Mouse ) | 2800 mg/kg ( Rabbit ) | 28.79 mg/L ( Rat ) 1h<br>7.8 mg/l ( Rat ) 4h |

**Toxicologically Synergistic Products** No information available

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Irritation** Irritating to eyes, respiratory system and skin

**Sensitization** No information available

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Component           | CAS-No   | IARC     | NTP                    | ACGIH      | OSHA | Mexico     |
|---------------------|----------|----------|------------------------|------------|------|------------|
| Ethylene dichloride | 107-06-2 | Group 2B | Reasonably Anticipated | Not listed | X    | Not listed |

IARC: (International Agency for Research on Cancer)

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Group 1 - Carcinogenic to Humans

Group 2A - Probably Carcinogenic to Humans

Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

Known - Known Carcinogen

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

NTP: (National Toxicity Program)

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** Respiratory system Central nervous system (CNS)

**STOT - repeated exposure** Kidney Liver Heart Blood

**Aspiration hazard** No information available

**Symptoms / effects, both acute and delayed** May cause central nervous system depression: Symptoms may include tightness in the chest, flushing, headache, nausea, vomiting, respiratory depression, weakness, irregular heartbeat, abdominal pain, convulsions, and shock

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

### Ecotoxicity

Do not empty into drains.

| Component           | Freshwater Algae  | Freshwater Fish  | Microtox   | Water Flea                                       |
|---------------------|---|--|------------|--|
| Ethylene dichloride | EC50: = 166 mg/L, 96h static (Desmodesmus subspicatus)<br>EC50: > 433 mg/L, 96h (Pseudokirchneriella subcapitata) | LC50: 110 - 123 mg/L, 96h flow-through (Pimephales promelas)<br>LC50: 230 - 710 mg/L, 96h flow-through (Lepomis macrochirus)<br>LC50: = 225 mg/L, 96h static (Oncorhynchus mykiss) | Not listed | EC50: 140 - 190 mg/L, 48h Static (Daphnia magna) |

**Persistence and Degradability** Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** Will likely be mobile in the environment due to its volatility.

| Component           | log Pow |
|---------------------|---------|
| Ethylene dichloride | 1.45    |

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

| Component                      | RCRA - U Series Wastes | RCRA - P Series Wastes |
|--------------------------------|------------------------|------------------------|
| Ethylene dichloride - 107-06-2 | U077                   | -                      |

**14. Transport information**

**DOT**

|                         |                     |
|-------------------------|---------------------|
| UN-No                   | UN1184              |
| Proper Shipping Name    | ETHYLENE DICHLORIDE |
| Hazard Class            | 3                   |
| Subsidiary Hazard Class | 6.1                 |
| Packing Group           | II                  |

**TDG**

|                         |                     |
|-------------------------|---------------------|
| UN-No                   | UN1184              |
| Proper Shipping Name    | ETHYLENE DICHLORIDE |
| Hazard Class            | 3                   |
| Subsidiary Hazard Class | 6.1                 |
| Packing Group           | II                  |

**IATA**

|                         |                     |
|-------------------------|---------------------|
| UN-No                   | UN1184              |
| Proper Shipping Name    | ETHYLENE DICHLORIDE |
| Hazard Class            | 3                   |
| Subsidiary Hazard Class | 6.1                 |
| Packing Group           | II                  |

**IMDG/IMO**

|                         |                     |
|-------------------------|---------------------|
| UN-No                   | UN1184              |
| Proper Shipping Name    | ETHYLENE DICHLORIDE |
| Hazard Class            | 3                   |
| Subsidiary Hazard Class | 6.1                 |
| Packing Group           | II                  |

**15. Regulatory information**

All of the components in the product are on the following Inventory lists: X = listed

**International Inventories**

| Component           | TSCA | DSL | NDSL | EINECS    | ELINCS | NLP | PICCS | ENCS | AICS | IECSC | KECL |
|---------------------|------|-----|------|-----------|--------|-----|-------|------|------|-------|------|
| Ethylene dichloride | X    | X   | -    | 203-458-1 | -      |     | X     | X    | X    | X     | X    |

**Legend:**

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

**U.S. Federal Regulations**

**TSCA 12(b)**

| Component           | TSCA 12(b) |
|---------------------|------------|
| Ethylene dichloride | Section 4  |

**SARA 313**

| Component           | CAS-No   | Weight % | SARA 313 - Threshold Values % |
|---------------------|----------|----------|-------------------------------|
| Ethylene dichloride | 107-06-2 | >95      | 0.1                           |

**SARA 311/312 Hazard Categories** See section 2 for more information

#### CWA (Clean Water Act)

| Component           | CWA - Hazardous Substances | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants |
|---------------------|----------------------------|-----------------------------|------------------------|---------------------------|
| Ethylene dichloride | X                          | 100 lb                      | X                      | X                         |

#### Clean Air Act

| Component           | HAPS Data | Class 1 Ozone Depletors | Class 2 Ozone Depletors |
|---------------------|-----------|-------------------------|-------------------------|
| Ethylene dichloride | X         |                         | -                       |

**OSHA** Occupational Safety and Health Administration  
Not applicable

**CERCLA** This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

| Component           | Hazardous Substances RQs | CERCLA EHS RQs |
|---------------------|--------------------------|----------------|
| Ethylene dichloride | 100 lb 1 lb              | -              |

**California Proposition 65** This product contains the following proposition 65 chemicals

| Component           | CAS-No   | California Prop. 65 | Prop 65 NSRL | Category   |
|---------------------|----------|---------------------|--------------|------------|
| Ethylene dichloride | 107-06-2 | Carcinogen          | 10 µg/day    | Carcinogen |

#### U.S. State Right-to-Know Regulations

| Component           | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|---------------------|---------------|------------|--------------|----------|--------------|
| Ethylene dichloride | X             | X          | X            | X        | -            |

#### U.S. Department of Transportation

Reportable Quantity (RQ): Y  
DOT Marine Pollutant N  
DOT Severe Marine Pollutant N

#### U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

#### Other International Regulations

**Mexico - Grade** Serious risk, Grade 3

## 16. Other information

**Prepared By** Regulatory Affairs  
Thermo Fisher Scientific  
Email: EMSDS.RA@thermofisher.com

**Creation Date** 04-Feb-2010

**Revision Date** 18-Jan-2018

**Print Date** 18-Jan-2018

**Revision Summary** This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

**Disclaimer**



The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**