**SPI Supplies Division**
**Structure Probe, Inc**.
206 Garfield Ave., West Chester, PA 19380-4512 USA
**Phone:** 1-(610)-436-5400 **Fax:** 1-(610)-436-5755
sales@2spi.com
**http://www.2spi.com**
**Manufacturer's CAGE: 1P573**

**Safety Data Sheet**

Date Effective: September 5, 2018

SPI Catalog # 02515-AA, 02515-AB

SPI-Chem™ Ethylene dichloride (1,2-Dichloroethane)

## *Section 1.1: Identification*

Chemical Name/Synonyms ..... Ethylene dichloride; 1,2-Dichloroethane

Product or Trade Name ..... SPI-Chem™ Ethylene Dichloride (1,2-dichloroethane)

CAS #'s ..... 107-06-2

Chemical Formula..... $C_2H_4Cl_2$

## Section 1.2: Relevant Uses/Restrictions

Chemical used as solvent for research and development.

## Section 1.3: Supplier of the Safety Data Sheet

**SPI Supplies Division**
**Structure Probe, Inc**.
206 Garfield Ave., West Chester, PA 19380-4512 USA
**Phone:** 1-(610)-436-5400 **Fax:** 1-(610)-436-5755
sales@2spi.com
**http://www.2spi.com**
**Manufacturer's CAGE: 1P573**

## Section 1.4: Emergency telephone number

Emergencies
Contacting CHEMTREC:

24 Hour Emergency Use Only #'s...
Worldwide phone: 1-(703)-741-5970
Toll-free phone: 1-(800)-424-9300 USA + Canada only

## *Section 2: Hazard Identification*

**2.1 Classification of the substance**

**Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS):**

Acute toxicity, category 4
Skin irritant, category 2
Eye irritant, category 2A
STOT SE, category 3

**Hazards not otherwise classified:** No information known.

**2.2 Label elements**

**Pictogram**

**Signal Word:** Danger

**Hazard statements:**

H225 Highly flammable liquid and vapor
H302 Harmful if swallowed
H315 Causes skin irritation
H319 Causes serious eye irritation
H350 May cause cancer
H335 May cause respiratory irritation

**Precautionary statements:**

P210 Keep away from heat/sparks/open flames/ hot surfaces. No smoking.
P201 Obtain special instructions before use.
P303 + P 361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**WHMIS Classification:**

B2 – Flammable liquid
D1B – Toxic material causing immediate and serious toxic effects
D2A – Very toxic material causing other toxic effects

**2.3 Other Hazards:**

**Results of PBT and vPvB assessment:**

PVB: Not applicable
vPvB: Not applicable

**Hazardous Material Information System USA**

Health ..... 2
Fire Hazard ..... 3
Reactivity ..... 1
Personal Protection .....

**NFPA Rating (estimated)**

Health ..... 2
Flammability..... 3
Reactivity ..... 0

## *Section 3: Composition*

**3.1 Substances:**

| | | | |
|---|---|---|---|
| Ethylene dichloride | CAS# 107-06-2 | EC# 203-458-1<br>Index number: 602-012-00-7 | <=100% |

RTECS number KI0525000

## *Section 4: First Aid Measures*

**4.1 Description of first aid measures:**

**Inhalation:**

Supply fresh air.
If required, provide artificial respiration.
Keep patient warm.
Seek immediate medical advice.

**Skin Contact:**

Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.

**Eye Contact:**

Rinse opened eye for several minutes under running water.
Then consult a doctor/physician.

**Ingestion:**

Seek medical treatment.

**Self-protection of the first aider:** No data available.

**4.2 Most important symptoms and effects, both acute and delayed:**

Causes skin irritation.
Harmful if swallowed.
Causes serious eye irritation.
May cause cancer.

**4.3 Indication of any immediate medical attention and special treatment needed:**

No further relevant information available.

## *Section 5: Fire Fighting Measures*

**5.1 Extinguishing media:**

Suitable extinguishing media: Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

**5.2 Special hazards arising from the substance or mixture:**

Special hazards arising from the substance or mixture: If this product is involved in a ire, the following can be released: Carbon monoxide and carbon dioxide; Hydrogen (HCl).

**5.3 Hazardous combustion products:** CO, $CO_2$, HCl

**5.4 Advice for firefighters:**

**Special protective equipment and precautions for firefighters:**
Wear self-contained respirator.
Wear fully protective impervious suit.

## *Section 6: Accidental Release Measures*

**6.1 Personal precautions:**

Wear protective equipment.
Keep unprotected persons away.
Ensure adequate ventilation.
Keep away from ignition sources.

**6.2 Environmental precautions:**

Do not allow product to reach sewage system or any water course.

**6.3 Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of contaminated material as waste according to Section 13.
Ensure adequate ventilation.

**6.4 Reference to other sections:**

See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

**Protective Action Criteria for Chemicals:**

**PAC-1:** 50 ppm
**PAC-2:** 200 ppm
**PAC-3:** 300 ppm

## *Section 7: Handling and Storage*

**7.1 Precautions for safe handling:**

Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.
Open and handle container with care.

**Information about protection against explosions and fires:**

Protect against electrostatic charges.
Fumes can combine with air to form an explosive mixture.
Keep ignition sources away.

**7.2 Conditions for safe storage, including any incompatibilities:**

Store in a cool location.
Store away from oxidizing agents.
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

**7.3 Specific end uses:**

Chemical used as solvent for research and development.

This material is not being offered for clinical or diagnostic applications, agricultural uses or for human or animal consumption.

## *Section 8: Exposure Controls and Personal Protection*

**8.1 Control parameter and Personal Protection:**

**Information on design of technical systems:** Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**Workplace exposure limits:**

**Control parameters:** CAS # 107-06-2

| | | |
|---|---|---|
| PEL (USA): | Long-term value: 50 ppm<br>Ceiling limit value: 100; 200* ppm | *5-min peak in any 3 hours |
| REL (USA): | Short-term value: 8 mg/m$^3$, 2 ppm<br>Long-term value: 4 mg/m$^3$, 1 ppm<br>See Pocket Guide Apps, A and C. | |
| TLV (USA): | Long-term value: 40 mg/m$^3$, 10 ppm | |
| EL (Canada): | Short-term value: 2 ppm<br>Long-term value: 1 ppm<br>IARC 2B | |
| EV (Canada): | Long-term value: 40 mg/m$^3$, 10 ppm | |

**Additional information:** No data available.

**Biological limit values:** No data available.

**8.2 Exposure controls:**

**8.2.1 Appropriate engineering controls:**

The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages, and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
Maintain an ergonomically appropriate working environment.

**8.2.2 Individual protection measures:**

**Breathing equipment:** Use suitable respirator when high concentrations are present.
**Recommended filter device for short term use:** Use a respirator with multi-purpose combination (US) or type ABEK (EN 14387) as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested an approved under appropriate government standards such as NIOSH (USA) OR CEN (EU).

**Protection of hands:**

Impervious gloves.
Check protective gloves prior to each use for their proper condition.
The selection of suitable gloves not only depends on the material, but also on quality.
Quality will vary from manufacturer to manufacturer.
Material of gloves: Fluorocarbon rubber (Viton).
Penetration time of glove material: 480 minutes.
Glove thickness: 0.7 mm.

Eye protection: Safety glasses with side shields/ NIOSH (US) OR EN 166 (EU).

**Body protection:** Protective work clothing.

**8.2.3 Environmental exposure controls:**

Do not allow product to reach sewage system or any water course.

## *Section 9: Physical and Chemical Properties*

**9.1 Information on basic physical and chemical properties:**

**Appearance:** Colorless liquid

**Odor:** Chloroform like

**Odor threshold:** Not determined

**pH:** Not determined

**Melting point/Freezing point:** -35 °C (-31 °F)

**Boiling point/Boiling point range:** 83 °C (181 °F)

**Flash Point:** 15 ° C (59 ° F)

**Evaporation rate:** Not determined

**Flammability (solid, gas):** Not determined

**Upper/lower flammability or explosive limits:**

Lower: 6.2 Vol %

Upper: 16 Vol %

**Vapor Pressure:** 87 hPa (65 mm Hg) @ 20 °C (68 °F)

**Density:** 1.256 g/cm$^3$ @ 20 °C (68 °F)

**Vapor density:** Not determined

**Relative density:** Not determined

**Solubility in/Miscibility with water:** 8 g/l @ 20 ° C (68 ° F)

**Partition coefficient (n-octanol/water):** Not determined

**Ignition temperature:** 440 °C (824 °F)

**Auto igniting:** Not determined

**Decomposition temperature:** Not determined

**Viscosity:**

Dynamic: 0.8 mPas @ 20 ° C (68 ° F)

Kinematic: Not determined

**Explosive properties:** Product is not explosive. However, formation of explosive air/vapor mixtures is possible.

**Oxidizing Properties:** Not determined.

**9.2 Other information:** No further relevant information is available.

## *Section 10: Stability and Reactivity*

**10.1 Reactivity:** No information known.

**10.2 Chemical Stability:** Stable under recommended storage conditions.

**10.3 Possibility of Hazardous Reactions:** Reacts with strong oxidizing agents.

**10.4 Thermal decomposition / conditions to be avoided:** Decomposition will not occur if used and stored according to specifications. No further relevant information available.

**10.5 Incompatible materials:** Oxidizing agents.

**10.6 Hazardous decomposition products:** Carbon monoxide and carbon dioxide; Hydrogen chloride (HCl).

## *Section 11: Toxicological Information*

**Information on the likely routes of exposure:**

Harmful if swallowed.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.
RTECS number KI0525000

**11.1 Information on toxicological effects:**

**A. Acute toxicity:**
CAS # 107-06-2

| | | |
|---|---|---|
| Oral | LD50 | 500 mg/kg (rat) |
| Dermal | LD50 | 413 mg/kg (mouse) |
| Dermal | LD50 | 2800 mg/kg (rabbit) |

**B. Skin irritation:**
Causes skin irritation.

**C. Serious eye damage/irritation:**
May cause eye irritation.

**D. Respiratory or skin sensitization:**
No sensitizing effects known.

**E. Germ cell mutagenicity:**
The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance.

**F. Carcinogenicity:**
May cause cancer.

EPA-B2: Probable human carcinogen, sufficient evidence from animal studies; inadequate evidence or not data from epidemiologic studies.

IARC-2B: Possibly carcinogenic to humans: limited evidence in humans in the absence of sufficient evidence in experimental animals.

NTP-R: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals.

ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this substance.

**G. Reproductive toxicity:**

The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for this substance.

**H. STOT- single exposure:** May cause respiratory irritation.

**I.** STOT- repeated exposure: No effects known.

**J. Aspiration hazard:** No effects known.

**K. Subacute to chronic toxicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.

**L. Additional toxicological information:** To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

## *Section 12: Ecological Information*

**12.1 Toxicity:** No further relevant information available.

**Aquatic toxicity:** No further relevant information available.

**12.2 Persistence and degradability:** No further relevant information available.

**12.3 Bio-accumulative potential:** No further relevant information available.

**12.4 Mobility in soil:** No further relevant information available.

**Additional ecological information:**

**General notes:**

Do not allow product ro reach ground water, water course, or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

Avoid transfer to the environment.

**12.5 Results of PBT and vPvB assessment:**

**PBT:** Not available.

**vPvB:** Not available.

**12.6 Other adverse effects:** No further relevant information available.

## *Section 13: Disposal Considerations*

**13.1 Waste treatment methods:**

Recommendation: Consult state, local, or national regulations to ensure proper disposal.

**Uncleaned packagings:**

Recommendation: Disposal must be made according to official regulations.

## *Section 14: Transport Information*

**DOT:**

UN Number: UN1184

| | |
|---|---|
| UN Proper shipping name: | Ethylene dichloride |
| Transport hazard class(es): | 3 (6.1) Flammable liquids |
| Packing group: | II |
| Quantity limitations: | On passenger aircraft/rail: 1 Liter<br>On cargo aircraft only: 60 Liters |
| Hazardous substance: | 100 lbs., 45.4 kg |
| Marine Pollutant (DOT): | No |

**IATA:**

| | |
|---|---|
| UN Number: | UN1184 |
| UN Proper shipping name: | ETHYLENE DICHLORIDE |
| Transport hazard class(es): | 3 (6.1) Flammable liquids |
| Packing group: | II |

**IMDG:**

| | |
|---|---|
| UN Number: | UN1184 |
| UN Proper shipping name: | ETHYLENE DICHLORIDE |
| Transport hazard class(es): | 3 (6.1) Flammable liquids |
| Packing group: | II |
| Limited quantities (LQ): | 1L |
| Excepted quantities (EQ): | Code: E2<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 500 ml |

**Environmental hazards:** Not applicable
**Special precautions for user:** Warning: Flammable liquids
**EMS Number:** F-E, S-D
Segregation groups: Liquid halogenated hydrocarbons
Stowage Category: B
**Stowage Code:** SW2 Clear of living quarters.
**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:** Not applicable.

## *Section 15: Regulatory Information*

**15.1 Safety, health and environmental regulations/ legislation specific for the substance or mixture:**

**U.S. Government Regulations:**
**US EPA TSCA Inventory:** CAS# 107-06-2 is listed on the TSCA Active Inventory List.

**TSCA Section 5(a)(2):** This substance is subject to a Significant New Use Rule (SNUR) promulgated under Section 5(a)(2) of the Toxic Substances Control Act (TSCA). See 40 CFR 721.

**SARA Section 313** (specific toxic chemical listings)
CAS # 107-06-2 1,2-Dichloroethane

**California Proposition 65:**
Prop 65 – Chemicals known to cause cancer:
CAS# 107-06-2 1,2-Dichloroethane
Prop 65 – Developmental toxicity: Substance is not listed.
Prop 65 – Developmental toxicity, female: Substance is not listed.
Prop 65 – Developmental toxicity, male: Substance is not listed.

**Information about limitation of use:**
Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.
For use only by technically qualified individuals.
This product is being sold for research and development use.

**International regulations:**

**CANADA:** All components of this product are listed on the Canadian Domestic Substances List (DSL).

**Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006:**
This substance is included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH).

**The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No. 1907/2006 (REACH) for the manufacturing, placing on the market, and use must be observed:**
Substance is not listed.

**Annex XIV of the REACH Regulations (requiring Authorization for use):** Substance is listed.

**15.2 Chemical Safety Assessment:** A Chemical Safety Assessment has not been carried out.

**Date of Preparation:** 05 September 2018.

**Abbreviations and acronyms**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
CMRG: Chemical Manufacturer's Recommended Guidelines
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
AIHA: American Industrial Hygiene Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bio-accumulative and Toxicological
vPvB: very Persistent and very Bio-accumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety Health
ATE: Acute Toxicity Estimates
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
STEL: Short Term Exposure Limit
CEIL: Ceiling
TSCA: Toxic Substances Control Act (USA)
DSL: Domestic Substances List (Canada)
PICCS: Philippine Inventory of Chemicals and Chemical Substances
ENCS: Existing and New Chemical Substances (Japan)
AICS: Australian Inventory of Chemical Substances
IECSC: Inventory of Existing Chemical Substances in China
KECL: Korea Existing Chemicals List

## *Section 16: Other Information*

**Disclaimer of Liability:**

Caution! Do not use SPI Supplies products or materials in applications involving implantation within the body; direct or indirect contact with the blood pathway; contact with bone, tissue, tissue fluid, or blood; or prolonged contact with mucous membranes. Products offered by SPI Supplies are not designed or manufactured for use in implantation in the human body or in contact with internal body fluids or tissues. SPI Supplies will not provide to customers making devices for such applications any notice, certification, or information necessary for such medical device use required by US FDA (Food and Drug Administration) regulation or any other statute. SPI Supplies and Structure Probe, Inc. make no representation, promise, express warranty or implied warranty concerning the suitability of these materials for use in implantation in the human body or in contact with internal body tissues of fluids.

The information and recommendations set forth above are taken from sources believed to be accurate as of the date hereof, however SPI Supplies and Structure Probe, Inc. make no warranty with respect to the accuracy of the information or the suitability of the recommendations, and assume no liability to any user thereof. The information contained in this sheet does not constitute a hazard assessment and should not be used in place of the user's own assessment of work place risks as required by other health and safety legislation. Be aware of the Structure Probe, Inc. Copyright Policy. Structure Probe, Inc. grants a nonexclusive license to make unlimited copies of this safety sheet for internal use only. Quite obviously, this information would pertain only to this material when purchased from SPI Supplies as product from other sources, with other ingredients and impurity levels could have substantially different properties.