## Section 1. Chemical Product and Company Identification

<table>
<thead>
<tr>
<th><strong>Common Name/Trade Name</strong></th>
<th><strong>Catalog Number(s).</strong></th>
<th><strong>CAS#</strong></th>
<th><strong>RTECS</strong></th>
<th><strong>TSCA</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloroethylene</td>
<td>SP873, T1115, T1116</td>
<td>79-01-6</td>
<td>KX4560000</td>
<td>TSCA 8(b) inventory: Trichloroethylene</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Manufacturer</strong></th>
<th><strong>Address</strong></th>
<th><strong>Phone Number</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECTRUM LABORATORY PRODUCTS INC.</td>
<td>14422 S. SAN PEDRO STREET GARDENA, CA 90248</td>
<td>(310) 516-8000</td>
</tr>
</tbody>
</table>

### Health Hazard

<table>
<thead>
<tr>
<th><strong>Exposure Limit</strong></th>
<th><strong>CAS #</strong></th>
<th><strong>TWA (mg/m^3)</strong></th>
<th><strong>STEL (mg/m^3)</strong></th>
<th><strong>CEIL (mg/m^3)</strong></th>
<th><strong>% by Weight</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Trichloroethylene</td>
<td>79-01-6</td>
<td>535</td>
<td>200</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

### Toxicological Data

- **ORAL (LD50):** Acute: 4920 mg/kg [Rat]. 2402 mg/kg [Mouse].
- **DERMAL (LD50):** Acute: >20000 mg/kg [Rabbit].
- **VAPOR (LC50):** Acute: 8450 ppm 4 hours [Mouse]. 8000 ppm 4 hours [Rat]. 26300 ppm 1 hour [Rat].

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**IN CASE OF EMERGENCY**

CHEMTREC (24hr) 800-424-9300

CALL (310) 516-8000

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Continued on Next Page
### Section 3. Hazards Identification

| Potential Acute Health Effects | Hazardous in case of skin contact (irritant), of eye contact (irritant). Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation. |
| Potential Chronic Health Effects | **CARCINOGENIC EFFECTS**: Classified 1 (Proven for human.) by IARC. Classified A2 (Suspected for human.) by ACGIH, 2 (Some evidence. Reasonably Anticipated to be a Human Carcinogen) by NTP. **MUTAGENIC EFFECTS**: Mutagenic for bacteria and/or yeast. **TERATOGENIC EFFECTS**: Not available. **DEVELOPMENTAL TOXICITY**: Not available. The substance may be toxic to kidneys, liver, heart, peripheral nervous system, upper respiratory tract, skin, eyes, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. |

### Section 4. First Aid Measures

| Eye Contact | Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention. |
| Skin Contact | In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention. |
| Serious Skin Contact | Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention. |
| Inhalation | If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear. |
| Serious Inhalation | Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention. |
| Ingestion | Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear. |
| Serious Ingestion | Not available. |

### Section 5. Fire and Explosion Data

| Flammability of the Product | May be combustible at high temperature. |
| Auto-Ignition Temperature | **420°C (788°F)** |
| Flash Points | Not available. |
| Flammable Limits | LOWER: 8%  UPPER: 10.5% at 25 deg. C  LOWER: 7.8%  UPPER: 52% at 100 deg. C |
| Products of Combustion | These products are carbon oxides (CO, CO2), halogenated compounds. |
| Fire Hazards in Presence of Various Substances | Slightly flammable to flammable in presence of open flames and sparks, of heat, of metals. |
| Fire Fighting Media and Instructions | SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet. |
| Special Remarks on Fire Hazards | Mixtures of powdered beryllium with trichloroethylene will flash on heavy impact. Mixtures of powdered magnesium with trichloroethylene will flash on heavy impact. Mixtures of powdered titanium with trichloroethylene will flash on heavy impact. |

Continued on Next Page
Granular Barium in contact with Trichloroethylene is susceptible to detonation. Mixtures of lithium shavings and trichloroethylene are impact-sensitive and will explode, sometimes violently. Mixture of liquid oxygen with dichloromethane, 1,1,1-trichloroethane, trichloroethylene, and chlorinated dye penetrants 1 and 2 exploded violently when initiated with a blasting cap. Mixtures of dinitrogen tetraoxide with trichloroethylene are explosive when subjected to shock of 25 g TNT equivalent or less.

Section 6. Accidental Release Measures

Small Spill
Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7. Handling and Storage

Precautions
Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/vapor/spray. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as metals, acids, alkalis.

Storage
Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8. Exposure Controls/Personal Protection

Engineering Controls
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits
TWA: 10 STEL: 25 (ppm) from ACGIH (TLV) [United States]
TWA: 100 CEIL: 200 (ppm) from OSHA (PEL) [United States]
TWA: 535 (µg/m³) from OSHA (PEL) [United States]
TWA: 10 STEL: 25 (ppm) from NIOSH [United States]
TWA: 100 STEL: 150 (ppm) [United Kingdom (UK)]
TWA: 550 STEL: 820 (mg/m³) [United Kingdom (UK)]
TWA: 50 STEL: 100 (ppm) [Canada]
TWA: 269 STEL: 537 (mg/m³) [Canada]
TWA: 10 STEL: 25 (ppm) [Canada]

Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance
Liquid.

Molecular Weight
131.39 g/mole

pH (1% soln/water)
Not available.

Boiling Point
86°C (186.8°F) - 87 C.

Melting Point
-87°C (-124.6°F)

Critical Temperature
300.2°C (572.4°F)

Specific Gravity
1.46 - 1.5 (Water = 1)

Vapor Pressure
7.7 kPa (@ 20°C)

Vapor Density
4.53 (Air = 1)

Consult local authorities for acceptable exposure limits.
### Solubility
- Soluble in diethyl ether, acetone.
- Very slightly soluble in cold water.
- Soluble in Ethanol, Chloroform.
- Solubility in Water: 1280 mg/l @ 25 deg. C.
- Miscible in oil

### Section 10. Stability and Reactivity Data

<table>
<thead>
<tr>
<th>Stability</th>
<th>The product is stable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instability Temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Conditions of Instability</td>
<td>Not available.</td>
</tr>
<tr>
<td>Incompatibility with various substances</td>
<td>Reactive with metals, acids, alkalis.</td>
</tr>
<tr>
<td>Corrosivity</td>
<td>Non-corrosive in presence of glass.</td>
</tr>
</tbody>
</table>

**Special Remarks on Reactivity**
- Trichloroethylene reacts violently with the anhydrous perchloric acid.
- Mixtures of dinitrogen tetraoxide with trichloroethylene react violently on heating to 150 deg C.
- In the presence of strong alkali (eg, sodium hydroxide), trichloroethylene can decompose into dichloroacetylene, an explosive, flammable, and highly toxic compound.
- Formation of phosgene, a highly toxic gas, was observed when trichloroethylene came into contact with iron, copper, zinc, or aluminum over the temperature range 250 deg C to 600 deg C.
- Incompatible with metal powders, active metals (alkali metals and alkaline earth metals) such as barium, lithium, sodium, magnesium, titanium.
- Trichloroethylene can react violently with the following: Aluminum (Al), Barium (Ba), Lithium (Li), Liquid oxygen (O2), Ozone (O3), Magnesium (Mg), Nitrogen tetroxide (N2O4), Potassium nitrate (KNO3), Potassium hydroxide (KOH), Sodium (Na), Sodium hydroxide (NaOH).
- Slowly decomposed with formation of Hydrochloric Acid by light and in the presence of moisture.
- Trichloroethylene is incompatible with organic anhydrides, isocyanates, alkylene oxides, aldehydes, alcohols, glycols, phenols, cresols, caprolactam solution, epichlorohydrin, nitrogen tetroxide.

**Special Remarks on Corrosivity**
- Not available.

**Polymerization**
- Will not occur.

### Section 11. Toxicological Information

<table>
<thead>
<tr>
<th>Routes of Entry</th>
<th>Absorbed through skin. Eye contact. Inhalation.</th>
</tr>
</thead>
</table>

**Toxicity to Animals**
- Acute oral toxicity (LD50): 2402 mg/kg [Mouse].
- Acute dermal toxicity (LD50): >20000 mg/kg [Rabbit].
- Acute toxicity of the vapor (LC50): 8000 4 hours [Rat], 8450 ppm 4 hours [Mouse], 26300 ppm 1hour [Rat]

**Chronic Effects on Humans**
- **CARCINOGENIC EFFECTS:** Classified 1 (Proven for human.) by IARC. Classified A2 (Suspected for human.) by ACGIH, 2 (Some evidence. Reasonably Anticipated to be a Human Carcinogen) by NTP.
- **MUTAGENIC EFFECTS:** Mutagenic for bacteria and/or yeast.
- May cause damage to the following organs: kidneys, liver, heart, peripheral nervous system, upper respiratory tract, skin, eyes, central nervous system (CNS). R68.
Trichloroethylene

Other Toxic Effects on Humans
Hazardous in case of skin contact (irritant), of eye contact (irritant).
Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals
Not available.

Special Remarks on Chronic Effects on Humans
Can cause cancer.
May affect genetic material (mutagenic).
May cause adverse reproductive effects and birth defects (teratogenic).

Special Remarks on other Toxic Effects on Humans
Acute Potential Health Effects:
Skin: Causes moderate to severe skin irritation with blistering, roughening, and cracking of skin.
Eyes: Causes moderate eye irritation. May cause corneal injury, double vision, blurred vision. Optic neuritis and blindness may occur.
Inhalation: Can cause bronchial irritation, respiratory depression, difficulty breathing, pulmonary edema. Exposure to concentrations of 100 ppm to 1000 ppm can cause nausea, vomiting, visual disturbances, and can affect behavior/central nervous system/peripheral nervous system (general anesthetic, change in motor activity, headache, confusion, hallucinations, restlessness, somnolence, incoordination, memory loss, tremor, depression, lightheadedness, sleepiness, fatigue, lethargy, excited feeling/euphoria, irritability, dizziness, convulsions, spastic paralysis with or without sensory change, tingling, muscular discomfort, weakness in arms and legs). Inhalation of extremely high concentrations (over 1000 ppm) may cause lung irritation, unconsciousness, convulsions, coma, and death due to respiratory or cardiac failure. It may also affect the liver and kidneys.
Ingestion: Can cause digestive/gastrointestinal tract irritation, burning sensation in the throat, dysphagia, abdominal pain, nausea, vomiting, diarrhea. It can result in symptoms of intoxication and other central nervous system/peripheral nervous system symptoms similar to that of inhalation. It may cause liver and kidney damage (hepatitis, jaundice, increase in liver enzymes, acute tubular necrosis in kidneys, kidney failure). It may cause heart dysrhythmias and circulatory collapse.
Chronic Potential Health Effects:
Skin: Prolonged or repeated skin contact may cause contact dermatitis, a skin allergy.
Can cause cancer.
May affect genetic material (mutagenic).
May cause adverse reproductive effects and birth defects (teratogenic).
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
The products of degradation are more toxic than the product itself.

Section 12. Ecological Information

Ecotoxicity
Not available.

BOD5 and COD
Not available.

Products of Biodegradation
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation
The products of degradation are more toxic than the product itself.

Special Remarks on the Products of Biodegradation
Not available.

Section 13. Disposal Considerations

Waste Disposal
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14. Transport Information

DOT Classification
CLASS 6.1: Poisonous material.

Identification
UNNA: 1710 : Trichloroethylene  PG: III

Special Provisions for Transport
Not available.

DOT (Pictograms)

Continued on Next Page
Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations
- California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Trichloroethylene
- California prop. 65 (no significant risk level): Trichloroethylene: 0.08 mg/day (inhalation)
- California prop. 65 (acceptable daily intake level): Trichloroethylene: 0.05 mg/day (value)
- California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Trichloroethylene
- New York release reporting list: Trichloroethylene
- Pennsylvania RTK: Trichloroethylene
- Minnesota: Trichloroethylene
- Massachusetts RTK: Trichloroethylene
- Massachusetts spill list: Trichloroethylene
- New Jersey: Trichloroethylene
- New Jersey spill list: Trichloroethylene
- Louisiana spill reporting: Trichloroethylene
- California Director's List of Hazardous Substances: Trichloroethylene
- TSCA 8(b) inventory: Trichloroethylene
- SARA 313 toxic chemical notification and release reporting: Trichloroethylene
- CERCLA: Hazardous substances: Trichloroethylene: 100 lbs. (45.36 kg)

California Proposition 65 Warnings
- California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Trichloroethylene
- California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.

Other Regulations
- EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances (EINECS No. 201-167-4).
- Canada: Listed on Canadian Domestic Substance List (DSL).
- China: Listed on National Inventory.
- Japan: Listed on National Inventory (ENCS).
- Korea: Listed on National Inventory (KECI).
- Philippines: Listed on National Inventory (PICCS).
- Australia: Listed on AICS.

Other Classifications
- WHMIS (Canada)
  - CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC).
  - CLASS D-2A: Material causing other toxic effects (VERY TOXIC).
  - CLASS D-2B: Material causing other toxic effects (TOXIC).

- DSCL (EEC)
  - R36/38- Irritating to eyes and skin.
  - R45- May cause cancer.
  - R52/53- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
  - S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
  - S53- Avoid exposure - obtain special instructions before use.
  - S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.)
- Health Hazard 2
- Fire Hazard 1
- Reactivity 0
- Personal Protection

National Fire Protection Association (U.S.A.)
- Flammability 2
- Reactivity 0
- Specific hazard 1

WHMIS (Canada) (Pictograms)

DSCL (Europe) (Pictograms)
Trichloroethylene

Section 16. Other Information

MSDS Code T3830

References Not available.

Other Special Considerations

Major Uses: Solvent; chemical intermediate; in preparation of insecticidal fumigants; in metal cleaning or degreasing; in the textile industry, it is used as a carrier solvent for spotting fluids and as a solvent in dyeing and finishing; used as a solvent for printing inks, paint, lacquers, varnishes, adhesives and paint strippers


CALL (310) 516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.