

## Material Safety Data Sheet

Revision Issued: 3/04/2010 Supercedes: 11/02/2005 First Issued: 6/24/1987

### Section I - Chemical Product And Company Identification

**Product Name: Perchloroethylene**

CAS Number: 127-18-4

HBCC MSDS No. CP05000



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### Section II - Composition/Information On Ingredients

Chemical Name	CAS Number	%
Perchloroethylene	127-18-4	100

See Section VIII for exposure guidelines

### Section III - Hazard Identification

**Routes of Exposure:** Perchloroethylene can affect the body either through ingestion, inhalation, or contact with the eyes and/or skin.

**Summary of Acute Health Hazards**

**Ingestion:** May cause irritation of the gastrointestinal tract with vomiting. If vomiting results in aspiration, chemical pneumonia could follow. Absorption through the gastrointestinal tract may produce symptoms of central nervous system depression ranging from light-headedness to unconsciousness.

**Inhalation:** Excessive inhalation may produce symptoms of central nervous system depression, ranging from light-headedness, nausea and vomiting, to unconsciousness and death.

**Skin:** Mildly irritating to the skin. Skin contact may produce a burning sensation. Prolonged or repeated contact may cause skin to become reddened, rough, and dry due to the removal of natural oils and may result in dermatitis.

**Eyes:** An irritant to the eyes, causing pain, lacrimation, and general inflammation.

**Summary of Chronic Health Hazards:** Can cause headache, mental confusion, depression, fatigue, loss of appetite, nausea, vomiting, coughing, loss of sense of balance, and visual disturbances. Prolonged or repeated skin contact may cause dermatitis.

**Signs and Symptoms of Exposure:** N/A

**Effects of Overexposure:** N/A

**Medical Conditions Generally Aggravated by Exposure:** Persons with pre-existing skin disorders, impaired liver function, or impaired renal function might have increased health risks working with perchloroethylene.

**Note to Physicians:** Do not administer adrenaline or epinephrine to a victim of chlorinated solvent poisoning.

#### Section IV - First Aid Measures

**Ingestion:** NEVER give anything by mouth to an unconscious person. Have the conscious victim drink 2 glasses of water to dilute. DO NOT INDUCE VOMITING. Keep the airway clear. GET MEDICAL ATTENTION IMMEDIATELY.

**Inhalation:** Remove the victim to fresh air immediately. If breathing is difficult, administer oxygen; if breathing has stopped, perform artificial respiration. GET MEDICAL ATTENTION IMMEDIATELY.

**Skin:** Wash the contaminated skin with plenty of soap and water for at least 15 minutes. If irritation persists after washing, get medical attention.

**Eyes:** Wash the eyes immediately with large amounts of water for at least 15 minutes, lifting the upper and lower lids. If irritation persists after washing, GET MEDICAL ATTENTION. Contact lenses should not worn with this product.

#### Section V - Fire Fighting Measures

**Flash Point:** Not Flammable      **Autoignition Temperature:** Not Flammable

**Lower Explosive Limit:** N/A      **Upper Explosive Limit:** N/A

**Unusual Fire and Explosion Hazards:** Perchloroethylene is nonflammable and non-explosive under normal conditions of use. At high temperatures PCE decomposes to give off hydrochloric acid as gas plus other toxic and irritating vapors such as phosgene. Vapors are heavier than air and collect in low-lying areas.

**Extinguishing Media:** Water spray, dry chemical, carbon dioxide, or foam may be used where perchloroethylene is stored.

**Special Firefighting Procedures:** Storage containers exposed to fire should be kept cool with a water spray in order to prevent pressure build-up. In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

#### Section VI - Accidental Release Measures

Ventilate the area of the leak or spill. Persons performing clean-up work should wear adequate personal protective equipment and clothing. Keep material out of water sources and sewers. Build dikes to contain flow as necessary. Neutralize with alkaline material (soda ash, lime), then absorb with an inert material (e.g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Flush area with water to remove trace residue, and dispose of the flush solution.

#### Section VII - Handling and Storage

Do not get in eyes, on skin, or on clothing, and avoid breathing the mist. Keep containers closed, and use with adequate ventilation. Wash thoroughly after handling. Under normal conditions, perchloroethylene may be stored satisfactorily in

galvanized iron, black iron or steel. Aluminum is not generally recommended for storage or handling. Store drums in a cool place (bungs up and closed tightly). Ventilation should be provided at the floor level.

## Section VIII - Exposure Controls/Personal Protection

### **Exposure Controls**

**Engineering Controls:** This product should be confined within closed equipment, in which case general (mechanical) room ventilation should be suitable. Special, local ventilation is needed at points where vapors are expected to be vented to the workplace air. Have eye baths and safety showers immediately available where eye contact and skin contact can occur.

**Work/Hygienic Practices:** All employees who handle perchloroethylene should wash their hands before eating, smoking, or using the toilet facilities. Do NOT place food, coffee or other drinks in the area where dusting or splashing of solutions is possible.

**Exposure Guideline(s):** Perchloroethylene: CAS Number 127-18-4, Exposure Limits (TWAs) in Air: ACGIH TLV: 25 ppm; OSHA PEL: 100 ppm; STEL: 100 ppm

### **Personal Protection**

**Personal Protection Equipment (PPE):** Use only a MSHA/NIOSH-approved respirator to prevent overexposure if vapor levels may or do exceed the exposure limits. See SUPPLEMENTAL INFORMATION.

**Protective Clothing:** Wear chemical goggles if there is the likelihood of contact with the eyes. Wear appropriate impervious gloves and protective clothing to prevent skin contact. Wear face shields and impervious aprons when splashing is likely. Remove contaminated clothing promptly and launder before reuse.

**Eye Protection:** Employees should be provided with and required to use splash-proof safety goggles where there is any possibility of Perchloroethylene contacting the eyes.

## Section IX - Physical and Chemical Properties

**Physical State:** Liquid

**pH:** N/A

**Melting Point/Range:** -19°C (-2.2°F) **Boiling Point/Range:** 121°C (250°F)

**Appearance/Color/Odor:** Clear, colorless liquid with an odor like chloroform or ether

**Solubility in Water:** 0.015 g/100 g H<sub>2</sub>O

**Vapor Pressure (mmHg):** 18 @ 25°C (77°F)

**Specific Gravity (Water=1):** 1.62

**Molecular Weight:** 165.85

**Vapor Density (Air=1):** 5.7

**% Volatiles:** 100

**Evaporation Rate (BuAc=1):** 0.33 (trichloroethylene = 1)

**How to detect this compound:** In air, adsorption on charcoal, workup with CS<sub>2</sub>, analysis by gas chromatography. In water, inert gas purge followed by gas chromatography with halide specific detection (EPA Method 601) or gas chromatography plus mass spectrometry (EPA Method 624).

## Section X - Stability and Reactivity

**Stability:** Stable under ordinary conditions of use and storage. Slowly decomposed by light. Deteriorates rapidly in warm, moist climates.

**Hazardous Polymerization:** Will Not Occur

**Conditions to Avoid:** High Temperatures, and moisture.

**Materials to Avoid:** Pure oxygen, strong oxidizers, alkali metals, open flames, and electrical arcs. PCE reacts violently with concentrated nitric acid to give carbon dioxide as a primary product. Zinc, barium, lithium. Slowly corrodes aluminum, iron and zinc.

**Hazardous Decomposition Products:** At high temperatures, PCE decomposes to give off hydrogen chloride gas, trichloroacetic acid and small quantities of other toxic and irritating vapors such as phosgene. Carbon dioxide and carbon monoxide may form when heated to decomposition.

## Section XI - Toxicological Information

Oral rat LD50: 2629 mg/kg; inhalation rat LC50: 4100 ppm/6H

## Section XII - Ecological Information

N/A

## Section XIII - Disposal Considerations

Dispose of in accordance with applicable local, county, state and federal regulations.

## Section XIV - Transport Information

**DOT Proper Shipping Name:** Tetrachloroethylene

**DOT Hazard Class/ I.D. No.:** 6.1, UN1897, III

## Section XV - Regulatory Information

### **CALIFORNIA PROPOSITION 65: WARNING**

**This product contains Tetrachloroethylene (Perchloroethylene), a substance known to the State of California to cause cancer.**

**CERCLA (Comprehensive Environmental Response, Compensation, and**

**Liability Act) Hazardous Substance:** Perchloroethylene, CAS # 127-18-4

100 Pounds (45.4 Kilograms) Reportable Quantity (RQ)

**RCRA (Resource Conservation & Recovery Act) Hazardous Waste Code:**

Perchloroethylene, CAS # 127-18-4, U210

**Section 313 Supplier Notification:** Perchloroethylene, CAS # 127-18-4, % by Weight: 100%

**NFPA (National Fire Protection Association) Rating:**

Health - 2; Flammability - 0; Instability - 0

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

**Carcinogenicity Lists: National Toxicology Program (NTP):** Yes

**International Agency for Research on Cancer (IARC) Monograph:** Yes

**Occupational Safety & Health Administration (OSHA) Regulated:** Yes

## Section XVI - Other Information

**Synonyms/Common Names:** Tetrachloroethylene, Perclene, Carbon Dichloride, PCE

**Chemical Family/Type:** N/A

**Sections changed since last revision:** II, IV, V, VI, VIII, IX, X, XI

**IMPORTANT!** Read this MSDS before use or disposal of this product. Pass along the information to employees and any other persons who could be exposed to the product to be sure that they are aware of the information before use or other exposure. This MSDS has been prepared according to the OSHA Hazard Communication Standard [29 CFR 1910.1200]. The MSDS information is based on sources believed to be reliable. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse are beyond our control, **Hill Brothers Chemical Company** makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Also, additional information may be necessary or helpful for specific conditions and circumstances of use. It is the user's responsibility to determine the suitability of this product and to evaluate risks prior to use, and then to exercise appropriate precautions for protection of employees and others.