



Health	3
Fire	0
Reactivity	2
Personal Protection	

# Material Safety Data Sheet

## Phosphorus trichloride MSDS

### Section 1: Chemical Product and Company Identification

**Product Name:** Phosphorus trichloride

**Catalog Codes:** SLP5299

**CAS#:** 7719-12-2

**RTECS:** TH3675000

**TSCA:** TSCA 8(b) inventory: Phosphorus trichloride

**CI#:** Not available.

**Synonym:** Phosphine, Trichloro-; Phosphorus Chloride

**Chemical Name:** Phosphorus Trichloride

**Chemical Formula:**  $PCl_3$

**Contact Information:**

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
Phosphorus trichloride	7719-12-2	100

**Toxicological Data on Ingredients:** Phosphorus trichloride: ORAL (LD50): Acute: 18 mg/kg [Rat]. VAPOR (LC50): Acute: 50 ppm 4 hours [Guinea pig].

### Section 3: Hazards Identification

**Potential Acute Health Effects:**

Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (corrosive, permeator), of eye contact (corrosive). Slightly hazardous in case of skin contact (sensitizer). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

**Potential Chronic Health Effects:**

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, kidneys, lungs, liver, upper respiratory tract. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

## 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. Get medical attention immediately.

### Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

### Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

### Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

### 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. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

### Ingestion:

If swallowed, 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 immediately.

**Serious Ingestion:** Not available.

## Section 5: Fire and Explosion Data

**Flammability of the Product:** Non-flammable.

**Auto-Ignition Temperature:** Not applicable.

**Flash Points:** Not applicable.

**Flammable Limits:** Not applicable.

**Products of Combustion:** Not available.

**Fire Hazards in Presence of Various Substances:** Not applicable.

### Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Slightly explosive in presence of heat, of moisture.

**Fire Fighting Media and Instructions:** Not applicable.

### Special Remarks on Fire Hazards:

It may burn, but does not ignite readily. May ignite combustibles (wood, paper, oil, clothing, etc.). Flammable hydrogen gas may be produced on prolonged contact with metals such as aluminum, tin, lead and zinc.

**Special Remarks on Explosion Hazards:** Not available.

## Section 6: Accidental Release Measures

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

**Large Spill:**

Corrosive liquid. Poisonous liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on 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 locked up.. Keep container dry. Keep away from heat. Keep away from sources of ignition. Keep away from direct sunlight or strong incandescent light. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. Avoid shock and friction. In case of insufficient ventilation, wear suitable respiratory equipment. 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 combustible materials, organic materials, metals, acids, moisture.

**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:

Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

### 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: 0.5 (ppm) from OSHA (PEL) [United States] TWA: 0.2 STEL: 0.5 (ppm) from ACGIH (TLV) [United States] STEL: 0.5 (ppm) from NIOSH [United States] STEL: 3 (mg/m<sup>3</sup>) from NIOSH [United States] TWA: 3 (mg/m<sup>3</sup>) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Liquid. (Fuming liquid.)

**Odor:** Pungent. Irritant. Like Hydrochloric acid

**Taste:** Not available.

**Molecular Weight:** 137.35 g/mole

**Color:** Colorless to light yellow. Clear

**pH (1% soln/water):** Not available.

**Boiling Point:** 76°C (168.8°F)

**Melting Point:** -112°C (-169.6°F)

**Critical Temperature:** Not available.

**Specific Gravity:** 1.574 (Water = 1)

**Vapor Pressure:** 13.3 kPa (@ 20°C)

**Vapor Density:** 4.75 (Air = 1)

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** See solubility in water, diethyl ether.

**Solubility:** Soluble in diethyl ether, chloroform, benzene, carbon disulfide, carbon tetrachloride

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Incompatible materials, moisture, water.

**Incompatibility with various substances:**

Reactive with combustible materials, organic materials, metals, acids, moisture. The product may undergo hazardous decomposition, condensation or polymerization, it may react violently with water to emit toxic gases or it may become self-reactive under conditions of shock or increase in temperature or pressure.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:**

It has a violent reaction with water producing hydrochloric and phosphoric acid Will react with water releasing toxic and/or corrosive gases. Incompatible with acetic acid, aluminum, chromyl chloride, diallyl phosphite and allyl alcohol, fluorine, hydroxylamine, iodine monochloride, lead dioxide, nitric acid, nitrous acid, organic matter, potassium, sodium, water, combustible materials, alcohol.

**Special Remarks on Corrosivity:** Corrodes most common construction material

**Polymerization:** Will not occur.

## Section 11: Toxicological Information

**Routes of Entry:** Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:**

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 18 mg/kg [Rat]. Acute toxicity of the vapor (LC50): 50 4 hours [Guinea pig].

**Chronic Effects on Humans:** May cause damage to the following organs: blood, kidneys, lungs, liver, upper respiratory tract.

**Other Toxic Effects on Humans:**

Extremely hazardous in case of inhalation (lung corrosive). Very hazardous in case of skin contact (irritant), of ingestion, . Hazardous in case of skin contact (corrosive, permeator), of eye contact (corrosive). Slightly hazardous in case of skin contact (sensitizer).

**Special Remarks on Toxicity to Animals:**

Lowest Published Lethal Dose: LDL [Rabbit] - Route: Skin; Dose: 1260 mg/kg

**Special Remarks on Chronic Effects on Humans:** Not available.

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Effects: Skin: Causes severe skin irritation and burns. It may be absorbed through the skin in harmful amounts. When absorbed through the skin, it may affect behavior/central nervous system (symptoms similar to that of inhalation and ingestion). May cause dermatitis. Inhalation: Harmful if inhaled. Causes severe irritation and chemical burns of the respiratory tract (nose and throat) with sore throat, coughing, bronchitis, pneumonitis, necrosis of the nostrils, shortness of breath, dyspnea and delayed lung edema. It may also affect behavior/central nervous system (muscle weakness, vertigo,

headache, dizziness). Eyes: Causes lacrimation, severe irritation and burns. May cause conjunctivitis, and photophobia. Ingestion: May be fatal if swallowed. Causes severe digestive tract irritation and burns with immediate pain, peritonitis, swelling of the throat, convulsions, and possible coma. It may also affect behavior (symptoms similar to that of inhalation), and respiration and cause chronic pulmonary edema. Other symptoms of exposure may include nausea, vomiting, anorexia (loss of appetite). Chronic Potential health effects: Repeated or prolonged exposure may cause kidney damage (nephritis) and may affect the liver (hepatic function)

## 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 less 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 8: Corrosive material CLASS 6.1: Poisonous material.

**Identification:** : Phosphorous trichloride UNNA: 1809 PG: I

**Special Provisions for Transport:** Poison, Inhalation Hazard Zone B

## Section 15: Other Regulatory Information

**Federal and State Regulations:**

Connecticut hazardous material survey.: Phosphorus trichloride Illinois toxic substances disclosure to employee act: Phosphorus trichloride Illinois chemical safety act: Phosphorus trichloride New York release reporting list: Phosphorus trichloride Rhode Island RTK hazardous substances: Phosphorus trichloride Pennsylvania RTK: Phosphorus trichloride Minnesota: Phosphorus trichloride Massachusetts RTK: Phosphorus trichloride Massachusetts spill list: Phosphorus trichloride New Jersey: Phosphorus trichloride New Jersey spill list: Phosphorus trichloride Louisiana RTK reporting list: Phosphorus trichloride Louisiana spill reporting: Phosphorus trichloride California Director's List of Hazardous Substances: Phosphorus trichloride TSCA 8(b) inventory: Phosphorus trichloride SARA 302/304/311/312 extremely hazardous substances: Phosphorus trichloride CERCLA: Hazardous substances.: Phosphorus trichloride: 1000 lbs. (453.6 kg)

**Other Regulations:**

**Other Classifications:**

**WHMIS (Canada):**

CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS E: Corrosive liquid. CLASS F: Dangerously reactive material.

**DSCL (EEC):**

R14- Reacts violently with water. R26/28- Very toxic by inhalation and if swallowed. R35- Causes severe burns. S7/8- Keep container tightly closed and dry. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical

advice. S36/37/39- Wear suitable protective clothing, gloves and eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**HMIS (U.S.A.):**

**Health Hazard:** 3

**Fire Hazard:** 0

**Reactivity:** 2

**Personal Protection:**

**National Fire Protection Association (U.S.A.):**

**Health:** 4

**Flammability:** 0

**Reactivity:** 2

**Specific hazard:**

**Protective Equipment:**

Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

## Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/11/2005 01:44 PM

**Last Updated:** 11/01/2010 12:00 PM

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