

Material Safety Data Sheet

Phosphorus Oxychloride

ACC# 18720

Section 1 - Chemical Product and Company Identification

MSDS Name: Phosphorus Oxychloride

Catalog Numbers: AC191290000, AC191290010, AC191290050, AC191292500, P106I-500

Synonyms: Phosphorus (III) Chloride Oxide; Phosphorus Oxytrichloride; Phosphoryl Chloride

Company Identification:

Fisher Scientific

1 Reagent Lane

Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
10025-87-3	Phosphorus oxychloride	100	233-046-7

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: colorless liquid.

Danger! Corrosive. Causes severe eye and skin burns. Causes severe digestive and respiratory tract burns. Water-reactive. Harmful if inhaled. Harmful if swallowed.

Target Organs: Kidneys, liver.

Potential Health Effects

Eye: Causes severe eye burns. Lachrymator (substance which increases the flow of tears).

Skin: Causes skin burns. Causes redness and pain.

Ingestion: Harmful if swallowed. Causes digestive tract burns with immediate pain, swelling of the throat, convulsions, and possible coma.

Inhalation: Harmful if inhaled. Causes chemical burns to the respiratory tract. May cause burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

Chronic: Prolonged or repeated exposure may lead to asthma and perforation of the nasal septum. May cause liver and kidney damage.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed.

Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately. Call a poison control center.

Inhalation: Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: Evacuate area and fight fire from a safe distance. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Water reactive. Material will react with water and may release a flammable and/or toxic gas. Substance is noncombustible. Contact with water can cause violent liberation of heat and splattering of the material.

Extinguishing Media: Do NOT use water directly on fire. Do NOT use alcohol foams. Use carbon dioxide or dry chemical. DO NOT USE WATER!

Flash Point: Not available.

Autoignition Temperature: Noncombustible

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 3; Flammability: 0; Instability: 2; Special Hazard: -W-

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Follow all MSDS and label precautions even after container is emptied because they may contain product residues. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Do not allow contact with water.

Storage: Store in a cool place in the original container and protect from sunlight. Store in a dry area. Heat can cause thermal decomposition and pressure build-up inside containers. Store protected from moisture. Store under nitrogen.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Phosphorus oxychloride	0.1 ppm TWA	0.1 ppm TWA; 0.6 mg/m ³ TWA	none listed

OSHA Vacated PELs: Phosphorus oxychloride: 0.1 ppm TWA; 0.6 mg/m³ TWA

Personal Protective Equipment

Eyes: 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.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: colorless

Odor: pungent odor

pH: Not available.

Vapor Pressure: 40 mm Hg @ 27.3

Vapor Density: 5.3

Evaporation Rate: 1

Viscosity: Not available.

Boiling Point: 107 deg C

Freezing/Melting Point: 1.2 deg C

Decomposition Temperature: Not available.

Solubility: Decomposes in water.

Specific Gravity/Density: 1.625 at 25°C

Molecular Formula: POCl₃

Molecular Weight: 153.3322

Section 10 - Stability and Reactivity

Chemical Stability: Stable. However, may decompose if heated. Combines vigorously with water with the evolution of heat.

Conditions to Avoid: Contact with water.

Incompatibilities with Other Materials: Reacts violently with water to yield phosphoric acid (H₃PO₄) and hydrochloric acid (HCl). The resulting acids can react with metals to yield hydrogen gas. Reacts violently or explosively with dimethyl sulfoxide and 2,6-dimethylpyridine N-oxide in the absence of diluent. Reaction with sodium metal may cause explosion. Zinc dust ignites on contact with phosphorus oxychloride, addition of water produces phosphine which ignites.

Hazardous Decomposition Products: Hydrogen chloride, phosphine, oxides of phosphorus, phosphorous fumes.

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 10025-87-3: TH4897000

LD50/LC50:

CAS# 10025-87-3:

Inhalation, mouse: LC50 = 404 mg/m³/2H;

Inhalation, rat: LC50 = 32 ppm/4H;

Oral, mouse: LD50 = 327 mg/kg;

Oral, rat: LD50 = 36 mg/kg;

Oral, rat: LD50 = 380 mg/kg;

Carcinogenicity:

CAS# 10025-87-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No data available.

Teratogenicity: No data available.

Reproductive Effects: No data available.

Mutagenicity: No data available.

Neurotoxicity: No data available.

Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	PHOSPHORUS OXYCHLORIDE	PHOSPHORUS OXYCHLORIDE
Hazard Class:	8	8
UN Number:	UN1810	UN1810
Packing Group:	II	II

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 10025-87-3 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 10025-87-3: 1000 lb final RQ; 454 kg final RQ

SARA Section 302 Extremely Hazardous Substances

CAS# 10025-87-3: 500 lb TPQ

SARA Codes

CAS # 10025-87-3: immediate, delayed, reactive.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 10025-87-3 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

CAS# 10025-87-3 is considered highly hazardous by OSHA.

STATE

CAS# 10025-87-3 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations**European Labeling in Accordance with EC Directives****Hazard Symbols:**

T+ C

Risk Phrases:

R 14 Reacts violently with water.

R 22 Harmful if swallowed.
R 26 Very toxic by inhalation.
R 35 Causes severe burns.
R 48/23 Toxic : danger of serious damage to health by prolonged exposure through inhalation.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 7/8 Keep container tightly closed and dry.

WGK (Water Danger/Protection)

CAS# 10025-87-3: 1

Canada - DSL/NDSL

CAS# 10025-87-3 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D1B, D2A, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 10025-87-3 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 12/12/1997

Revision #6 Date: 6/23/2006

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.