SAFETY DATA SHEET

Creation Date 07-June-2010 **Revision Date** 29-March-2024 **Revision Number** 4

1. Identification

Product Name **Phosphorus(V) chloride**

Cat No. : **11849**

CAS-No 10026-13-8
Synonyms Phosphoric chloride.; Phosphorus perchloride

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Importer/Distributor
Fisher Scientific
112 Colonnade Road,
Ottawa, ON K2E 7L6,
Canada
Tel: 1-800-234-7437

Emergency Telephone Number
For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No. **US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

WHMIS 2015 Classification Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

Acute oral toxicity	Category 4	
Acute Inhalation Toxicity	Category 3	(based on evolved HCl gas)
Skin Corrosion/Irritation	Category 1 B	
Serious Eye Damage/Eye Irritation	Category 1	
Specific target organ toxicity - (repeated exposure)	Category 2	
Target Organs - Respiratory system.		
Physical Hazards Not Otherwise Classified	Category 1	
Reacts violently with water		
Health Hazards Not Otherwise Classified	Category 1	
In contact with water, releases gases which are toxic if inhaled		

Label Elements

Signal Word

Danger

Hazard Statements
Harmful if swallowed
Toxic if inhaled
Causes severe skin burns and eye damage
May cause damage to organs through prolonged or repeated exposure
Reacts violently with water
In contact with water, releases gases which are toxic if inhaled

Precautionary Statements
Prevention
Keep container tightly closed
Wash face, hands and any exposed skin thoroughly after handling
Do not allow contact with water
Do not breathe dust/fumes/gas/mist/vapours/spray
Use only outdoors or in a well-ventilated area
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/eye protection/face protection
Wear respiratory protection
Response
IF INHALED: Remove person to fresh air and keep comfortable for breathing
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER/doctor
Rinse mouth
Do NOT induce vomiting
Wash contaminated clothing before reuse
Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Store in a dry place
Disposal
Dispose of contents/container to an approved waste disposal plant

Other Hazards
May cause pulmonary edema

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Phosphorus pentachloride	10026-13-8	98

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical

attention is required.

Inhalation Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required. If not breathing, give artificial respiration.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately.

Most important symptoms/effects Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: After inhalation exposure, observe for 24 to 72 hours as pulmonary edema may be delayed

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Carbon dioxide (CO_2). Dry chemical. Substance is nonflammable; use agent most appropriate to extinguish surrounding fire. Flooding quantities of water.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Water reactive. Contact with water liberates toxic gas.

Hazardous Combustion Products
Fumes. Oxides of phosphorus. Phosphorus trihydride (phosphine). Hydrogen chloride gas.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
4	0	2	W

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid dust formation.

Environmental Precautions Should not be released into the environment.

Methods for Containment and Clean Up Prevent product from entering drains. Provide adequate ventilation. Sweep up and shovel into suitable containers for disposal. Do not flush into surface water or sanitary sewer system. Avoid dust formation.

7. Handling and storage

Handling Use only under a chemical fume hood. Wear personal protective equipment/face protection.

Do not get in eyes, on skin, or on clothing. Avoid breathing vapors or mists. Do not ingest. If swallowed then seek immediate medical assistance. Wash thoroughly after handling. Minimize dust generation and accumulation. Do not allow contact with water. Keep containers dry and tightly closed to avoid moisture absorption and contamination. Wash hands before breaks and immediately after handling the product.

Storage. Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Corrosives area. Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. Water. Bases.

8. Exposure controls / personal protection

Exposure Guidelines

Component	Alberta	British Columbia	Ontario TWAEV	Quebec	ACGIH TLV	OSHA PEL	NIOSH
Phosphorus pentachloride	TWA: 0.1 ppm TWA: 0.9 mg/m^3	TWA: 0.1 ppm	TWA: 0.1 ppm	TWA: 0.1 ppm TWA: 0.85 mg/m^3	TWA: 0.1 ppm	(Vacated) TWA: 1 mg/m^3 TWA: 1 mg/m^3	IDLH: 70 mg/m^3 TWA: 1 mg/m^3

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.
Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles
Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	Glove comments
Natural rubber Butyl rubber Nitrile rubber Neoprene PVC	See manufacturers recommendations	-	Splash protection only

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly
Recommended Filter type: Particulates filter conforming to EN 143

When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls
No information available.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Off-white
Odor	No information available
Odor Threshold	No information available
pH	1 5 g/L water
Melting Point/Range	167 °C / 332.6 °F
Boiling Point/Range	160 °C / 320 °F
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	0.11 mbar @ 30 °C
Vapor Density	Not applicable
Specific Gravity	1.600
Solubility	Decomposes in contact with water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	167 °C
Viscosity	Not applicable
Molecular Formula	Cl5 P
Molecular Weight	208.24

10. Stability and reactivity

Reactive Hazard Yes

Stability Water reactive. Reacts violently with water. Contact with water liberates toxic gas.

Conditions to Avoid Avoid dust formation. Protect from water.

Incompatible Materials Water, Bases

Hazardous Decomposition Products Fumes, Oxides of phosphorus, Phosphorus trihydride (phosphine), Hydrogen chloride gas

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Phosphorus pentachloride	LD50 = 600 mg/kg (Rat)	LD50 = 660 mg/kg (Rabbit)	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Causes burns by all exposure routes

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Phosphorus pentachloride	10026-13-8	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure Respiratory system

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: After inhalation exposure, observe for 24 to 72 hours as pulmonary edema may be delayed

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability Reacts violently with water Persistence is unlikely based on information available. Soluble in water

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT
UN-No UN1806
Proper Shipping Name PHOSPHORUS PENTACHLORIDE
Hazard Class 8
Packing Group II

TDG
UN-No UN1806
Proper Shipping Name PHOSPHORUS PENTACHLORIDE
Hazard Class 8
Packing Group II

IATA
UN-No UN1806

Proper Shipping Name PHOSPHORUS PENTACHLORIDE
Hazard Class 8
Packing Group II

IMDG/IMO

UN-No UN1806
Proper Shipping Name PHOSPHORUS PENTACHLORIDE
Hazard Class 8
Packing Group II

15. Regulatory information

International Inventories

Component	CAS-No	DSL	NDSL	TSCA	TSCA Inventory notification - Active-Inactive	EINECS	ELINCS	NLP
Phosphorus pentachloride	10026-13-8	X	-	X	ACTIVE	233-060-3	-	-

Component	CAS-No	IECSC	KECL	ENCS	ISHL	TCSI	AICS	NZIoC	PICCS
Phosphorus pentachloride	10026-13-8	X	KE-28719	X	X	X	X	X	X

Legend:
X - Listed '-' - Not Listed
KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
ENCS - Japanese Existing and New Chemical Substances
AICS - Australian Inventory of Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

Canada

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

Other International Regulations

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Phosphorus pentachloride	-	Use restricted. See item 75. (see link for restriction details)	-

REACH links
https://echa.europa.eu/substances-restricted-under-reach

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

Component	CAS-No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Phosphorus pentachloride	10026-13-8	Listed	Not applicable	Not applicable	Not applicable

Component	CAS-No	Seveso III Directive (2012/18/EC) - Qualifying Quantities	Seveso III Directive (2012/18/EC) - Qualifying Quantities	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)

		for Major Accident Notification	for Safety Report Requirements		
Phosphorus pentachloride	10026-13-8	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By
Product Safety Department
Email: chem.techinfo@thermofisher.com
www.thermofisher.com

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Disclaimer

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End of SDS