

1 Identification

Product identifier

Product name: Phosphorus (III) chloride

Stock number: 44436

CAS Number:

7719-12-2

EC number:

231-749-3

Index number:

015-007-00-4

Relevant identified uses of the substance or mixture and uses advised against.

Identified use: SU24 Scientific research and development

Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Alfa Aesar

Thermo Fisher Scientific Chemicals, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Tel: 800-343-0660

Fax: 800-322-4757

Email: tech@alfa.com

www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency telephone number:

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

2 Hazard(s) identification

Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)



GHS06 Skull and crossbones

Acute Tox. 1 H300 Fatal if swallowed.

Acute Tox. 1 H330 Fatal if inhaled.



GHS08 Health hazard

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.



GHS05 Corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

Hazards not otherwise classified No information known.

Label elements

GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

Hazard pictograms



GHS05 GHS06 GHS08

Signal word

Danger

Hazard statements

H300+H330 Fatal if swallowed or if inhaled.

H314 Causes severe skin burns and eye damage.

H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor/...

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P320 Specific treatment is urgent (see on this label).

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

WHMIS classification

D1A - Very toxic material causing immediate and serious toxic effects

D2A - Very toxic material causing other toxic effects

E - Corrosive material

F - Dangerously reactive material



Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH 3 Health (acute effects) = 3

FIRE 0 Flammability = 0

REACTIVITY 2 Physical Hazard = 2

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

Product name: Phosphorus (III) chloride

vPvB: Not applicable.

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3 Composition/information on ingredients

Chemical characterization: Substances

CAS# Description:

7719-12-2 Phosphorus (III) chloride

Identification number(s):

EC number: 231-749-3

Index number: 015-007-00-4

4 First-aid measures

Description of first aid measures

General information

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing has been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing Do not induce vomiting; immediately call for medical help.

Information for doctor

Most important symptoms and effects, both acute and delayed

Causes severe skin burns.

Causes serious eye damage.

Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

Extinguishing media

Suitable extinguishing agents Product is not flammable. Use fire-fighting measures that suit the surrounding fire.

For safety reasons unsuitable extinguishing agents Water

Special hazards arising from the substance or mixture

Reacts violently with water

If this product is involved in a fire, the following can be released:

Hydrogen chloride (HCl)

Phosphorus oxides

Advice for firefighters

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Environmental precautions: Do not allow material to be released to the environment without proper governmental permits.

Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose of contaminated material as waste according to section 13.

Ensure adequate ventilation.

Do not flush with water or aqueous cleansing agents

Prevention of secondary hazards: No special measures required.

Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage

Handling

Precautions for safe handling

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Open and handle container with care.

Information about protection against explosions and fires: The product is not flammable

Conditions for safe storage, including any incompatibilities

Storage

Requirements to be met by storerooms and receptacles: No special requirements.

Information about storage in one common storage facility:

Store away from strong bases.

Store away from alcohols.

Store away from water/moisture.

Further information about storage conditions:

Protect from humidity and water.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

(Contd. on page 3)
USA

Product name: Phosphorus (III) chloride

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Control parameters**Components with limit values that require monitoring at the workplace:**

Phosphorus (III) chloride

	ppm
ACGIH TLV	0.2; 0.5-STEL
Austria MAK	0.25
Belgium TWA	0.2; 0.5-STEL
Denmark TWA	0.2
Finland TWA	0.5-STEL (skin)
France VME	0.2
Germany MAK	0.5
Hungary TWA	1 mg/m ³ ; 2 mg/m ³ -STEL
Korea TLV	0.2; 0.5-STEL
Netherlands MAC-TGG	0.2
Norway TWA	0.2
Poland TWA	1 mg/m ³ ; 2 mg/m ³ -STEL
Russia	0.2-STEL (skin)
United Kingdom TWA	0.2; 0.5-STEL
USA PEL	0.5

7719-12-2 Phosphorus (III) chloride (100.0%)

PEL (USA)	Long-term value: 3 mg/m ³ , 0.5 ppm
REL (USA)	Short-term value: 3 mg/m ³ , 0.5 ppm
	Long-term value: 1.5 mg/m ³ , 0.2 ppm
TLV (USA)	Short-term value: 2.8 mg/m ³ , 0.5 ppm
	Long-term value: 1.1 mg/m ³ , 0.2 ppm
EL (Canada)	Short-term value: 0.5 ppm
	Long-term value: 0.2 ppm
EV (Canada)	Short-term value: 2.8 mg/m ³ , 0.5 ppm
	Long-term value: 1.1 mg/m ³ , 0.2 ppm

Additional information: No data**Exposure controls****Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

Breathing equipment: Use self-contained respiratory protective device in emergency situations.**Protection of hands:**

Impervious gloves

Check protective gloves prior to each use for their proper condition.

The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

Penetration time of glove material (in minutes) Not determined**Eye protection:**

Tightly sealed goggles

Full face protection

Body protection: Protective work clothing.**9 Physical and chemical properties****Information on basic physical and chemical properties****General Information****Appearance:**

Form:	Liquid
Color:	Yellowish
Odor:	Acrid
Odor threshold:	Not determined.

pH-value: Not determined.**Change in condition**

Melting point/Melting range:	-111.8 °C (-169 °F)
Boiling point/Boiling range:	76 °C (169 °F)
Sublimation temperature / start:	Not determined

Flash point:	Not determined
Flammability (solid, gaseous)	Not determined.
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Auto igniting:	Not determined.

Danger of explosion: Product does not present an explosion hazard.**Explosion limits:**

Lower:	Not determined
Upper:	Not determined
Vapor pressure at 20 °C (68 °F):	127 hPa (95 mm Hg)
Density at 20 °C (68 °F):	1.57 g/cm ³ (13.102 lbs/gal)
Relative density	Not determined.
Vapor density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water:	Reacts violently
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
dynamic:	Not determined.
kinematic:	Not determined.
Other information	No further relevant information available.

Product name: Phosphorus (III) chloride

(Contd. of page 3)

10 Stability and reactivity

Reactivity Reacts violently with water.

Chemical stability Stable under recommended storage conditions.

Thermal decomposition / conditions to be avoided: Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions

Reacts with strong alkali

Reacts with alcohols

Water reacts violently with alkali metals.

Reacts with amines

Reacts with humid air

Contact with water releases toxic gases

Contact with acids releases toxic gases

Reacts violently with water

Conditions to avoid No further relevant information available.

Incompatible materials:

Bases

Oxidizing agents

Alkali metals

Alcohols

Aluminum/aluminum alloys.

Water/moisture

Hazardous decomposition products:

Hydrogen chloride (HCl)

Phosphorus oxides (e.g. P₂O₅)

11 Toxicological information

Information on toxicological effects

Acute toxicity:

Fatal if swallowed.

Fatal if inhaled.

Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

LD/LC50 values that are relevant for classification: No data

Skin irritation or corrosion: Causes severe skin burns.

Eye irritation or corrosion: Causes serious eye damage.

Sensitization: No sensitizing effects known.

Germ cell mutagenicity: No effects known.

Carcinogenicity: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

Reproductive toxicity: No effects known.

Specific target organ system toxicity - repeated exposure:

May cause damage to organs through prolonged or repeated exposure.

Specific target organ is not known.

Specific target organ system toxicity - single exposure: No effects known.

Aspiration hazard: No effects known.

Subacute to chronic toxicity:

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Behavioral - food intake (animal).

Behavioral - muscle weakness.

Blood - hemorrhage.

Gastrointestinal - peritonitis.

Liver - change in gall bladder structure or function.

Lungs, Thorax, or Respiration - chronic pulmonary edema.

Lungs, Thorax, or Respiration - structural or functional change in trachea or bronchi.

Lungs, Thorax, or Respiration - other changes.

Lungs, Thorax, or Respiration - dyspnea.

Sense Organs and Special Senses (Eye) - effect, not otherwise specified.

Subacute to chronic toxicity:

Phosphorus chlorides are extremely destructive to tissues of the respiratory tract, eyes and skin. Exposure may result in inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema, burning sensations, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting.

Exposure may be fatal. May cause serious injury to the eyes on contact.

Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

12 Ecological information

Toxicity

Aquatic toxicity: No further relevant information available.

Persistence and degradability No further relevant information available.

Bioaccumulative potential No further relevant information available.

Mobility in soil No further relevant information available.

Additional ecological information:

General notes:

Do not allow product to reach ground water, water course or sewage system.

Do not allow material to be released to the environment without proper governmental permits.

Danger to drinking water if even small quantities leak into the ground.

Avoid transfer into the environment.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects No further relevant information available.

13 Disposal considerations

Waste treatment methods

Recommendation Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

14 Transport information

UN-Number

DOT, IMDG, IATA

UN1809

(Contd. on page 5)
USA


Product name: **Phosphorus (III) chloride**

(Contd. of page 4)

UN proper shipping name

DOT Phosphorus trichloride
IMDG, IATA PHOSPHORUS TRICHLORIDE

Transport hazard class(es)

DOT

Class 6.1 Toxic substances.
Label 6.1+8
Class 6.1 (TC3) Toxic substances
Label 6.1+8
IMDG, IATAClass 6.1 Toxic substances.
Label 6.1+8Packing group
DOT, IMDG, IATA

I

Environmental hazards:

Not applicable.

Special precautions for user

Warning: Toxic substances

Poison inhalation hazard:

Yes

Segregation groups

Acids

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

Transport/Additional information:

DOT No
Marine Pollutant (DOT): This material is poisonous by inhalation in Hazard Zone B.
Remarks:

UN "Model Regulation": UN1809, Phosphorus trichloride, 6.1 (8), I

15 Regulatory information

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

GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

Hazard pictograms



GHS05 GHS06 GHS08

Signal word Danger

Hazard statements

H300+H330 Fatal if swallowed or if inhaled.

H314 Causes severe skin burns and eye damage.

H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor/...

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P320 Specific treatment is urgent (see on this label).

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

SARA Section 313 (specific toxic chemical listings) Substance is not listed.

California Proposition 65

Prop 65 - Chemicals known to cause cancer Substance is not listed.

Prop 65 - Developmental toxicity Substance is not listed.

Prop 65 - Developmental toxicity, female Substance is not listed.

Prop 65 - Developmental toxicity, male Substance is not listed.

Information about limitation of use: For use only by technically qualified individuals.

Other regulations, limitations and prohibitive regulations

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.

The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.

Substance is not listed.

Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing SDS: Global Marketing Department

Date of preparation / last revision 11/24/2015 / -

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

LC50: Lethal concentration, 50 percent

(Contd. on page 6)

USA

Product name: Phosphorus (III) chloride

LD50: Lethal dose, 50 percent
vPvB: very Persistent and very Bioaccumulative
ACGIH: American Conference of Governmental Industrial Hygienists (USA)
OSHA: Occupational Safety and Health Administration (USA)
NTP: National Toxicology Program (USA)
IARC: International Agency for Research on Cancer
EPA: Environmental Protection Agency (USA)

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