

ALFAAB21179

## Ethyl phosphorodichloridite

### SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

产品说明:  
Product Description: 乙基二氯磷酸酯, 98%  
Ethyl phosphorodichloridite

Cat No. : B21179  
Synonyms Ethyl phosphorodichloridite  
CAS No 1498-42-6  
Molecular Formula C2 H5 Cl2 O P

Supplier Avocado Research Chemicals Ltd.  
(Part of Thermo Fisher Scientific)  
Shore Road, Heysham  
Lancashire, LA3 2XY,  
United Kingdom  
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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

E-mail address begel.sdsdesk@thermofisher.com

Recommended Use Laboratory chemicals.  
Uses advised against No Information available

### SECTION 2. HAZARD IDENTIFICATION

**Physical State**  
Liquid

**Appearance**  
Colorless

**Odor**  
Odorless

#### Emergency Overview

Highly flammable liquid and vapor. Causes severe skin burns and eye damage. Contact with water liberates toxic gas. Moisture sensitive.

#### Classification of the substance or mixture

|                                   |              |
|-----------------------------------|--------------|
| Flammable liquids.                | Category 2   |
| Skin Corrosion/Irritation         | Category 1 B |
| Serious Eye Damage/Eye Irritation | Category 1   |

#### Label Elements



**Signal Word****Danger****Hazard Statements**

H225 - Highly flammable liquid and vapor

H314 - Causes severe skin burns and eye damage

**Precautionary Statements****Prevention**

P241 - Use explosion-proof electrical/ ventilating/ lighting equipment

P242 - Use non-sparking tools

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

P233 - Keep container tightly closed

P240 - Ground and bond container and receiving equipment

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P243 - Take action to prevent static discharges

P264 - Wash face, hands and any exposed skin thoroughly after handling

**Response**

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

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

P310 - Immediately call a POISON CENTER or doctor

P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

P362 + P364 - Take off contaminated clothing and wash it before reuse

**Storage**

P403 + P235 - Store in a well-ventilated place. Keep cool

**Disposal**

P501 - Dispose of contents/ container to an approved waste disposal plant

**Physical and Chemical Hazards**

Highly flammable. Vapors may cause flash fire or explosion.

**Health Hazards**

Corrosive. Causes skin and eye burns.

**Environmental hazards**

Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants.

This product does not contain any known or suspected endocrine disruptors.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

| Component               | CAS No    | Weight % |
|-------------------------|-----------|----------|
| Ethyl dichlorophosphite | 1498-42-6 | 98       |

**SECTION 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 soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.

**Inhalation**

Remove to fresh air. 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 and effects**

Difficulty in breathing. Causes burns by all exposure routes. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: 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

**Self-Protection of the First Aider**

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

**Notes to Physician**

Treat symptomatically.

**SECTION 5. FIRE-FIGHTING MEASURES****Suitable Extinguishing Media**

CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.

**Extinguishing media which must not be used for safety reasons**

Water.

**Specific Hazards Arising from the Chemical**

Flammable. Corrosive material. Contact with water liberates toxic gas. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition. Vapors may form explosive mixtures with air.

**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.

**SECTION 6. ACCIDENTAL RELEASE MEASURES****Personal Precautions**

Use personal protective equipment as required. Evacuate personnel to safe areas. Remove all sources of ignition. Do not get in eyes, on skin, or on clothing. Take precautionary measures against static discharges.

**Environmental Precautions**

Avoid release to the environment.

**Methods for Containment and Clean Up**

Remove all sources of ignition. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Use spark-proof tools and explosion-proof equipment.

Refer to protective measures listed in Sections 8 and 13.

**SECTION 7. HANDLING AND STORAGE****Handling**

Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not breathe mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

**Storage**

## Ethyl phosphorodichloridite

Keep in a dry place. Keep container tightly closed. Keep away from heat, sparks and flame. Flammables area. Store under an inert atmosphere. Keep refrigerated. Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area.

**Specific Use(s)**

Use in laboratories

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Control Parameters****Monitoring methods**

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS70 General methods for sampling airborne gases and vapours MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

**Exposure Controls****Engineering Measures**

Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. 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 (European standard - EN 166)

**Hand Protection**

Protective gloves

| Glove material | Breakthrough time | Glove thickness | EU standard | Glove comments        |
|----------------|-------------------|-----------------|-------------|-----------------------|
| Nitrile rubber | See manufacturers | -               | EN 374      | (minimum requirement) |
| Neoprene       | recommendations   |                 |             |                       |
| Natural rubber |                   |                 |             |                       |
| PVC            |                   |                 |             |                       |

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, 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.

Remove gloves with care avoiding skin contamination.

**Skin and body protection**

Wear appropriate protective gloves and clothing to prevent skin exposure

**Respiratory Protection**

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.  
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

**Large scale/emergency use**

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced  
**Recommended Filter type:** Organic gases and vapours filter Type A Brown conforming to EN14387

**Small scale/Laboratory use**

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.  
**Recommended half mask:-** Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141

## Ethyl phosphorodichloridite

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

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls No information available.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

|                                         |                                 |                                             |
|-----------------------------------------|---------------------------------|---------------------------------------------|
| Appearance                              | Colorless                       |                                             |
| Physical State                          | Liquid                          |                                             |
| Odor                                    | Odorless                        |                                             |
| Odor Threshold                          | No data available               |                                             |
| pH                                      | No information available        |                                             |
| Melting Point/Range                     | No data available               |                                             |
| Softening Point                         | No data available               |                                             |
| Boiling Point/Range                     | 117 - 118 °C / 242.6 - 244.4 °F | @ 760 mmHg                                  |
| Flash Point                             | 4 °C / 39.2 °F                  | Method - No information available           |
| Evaporation Rate                        | No data available               |                                             |
| Flammability (solid,gas)                | Not applicable                  | Liquid                                      |
| Explosion Limits                        | No data available               |                                             |
| Vapor Pressure                          | No information available        |                                             |
| Vapor Density                           | 5.06                            | (Air = 1.0)                                 |
| Specific Gravity / Density              | 1.280                           |                                             |
| Bulk Density                            | Not applicable                  | Liquid                                      |
| Water Solubility                        | No information available        |                                             |
| Solubility in other solvents            | No information available        |                                             |
| Partition Coefficient (n-octanol/water) |                                 |                                             |
| Autoignition Temperature                | No data available               |                                             |
| Decomposition Temperature               | No data available               |                                             |
| Viscosity                               | No data available               |                                             |
| Explosive Properties                    |                                 | Vapors may form explosive mixtures with air |
| Oxidizing Properties                    | No information available        |                                             |
| Molecular Formula                       | C2 H5 Cl2 O P                   |                                             |
| Molecular Weight                        | 146.94                          |                                             |

**SECTION 10. STABILITY AND REACTIVITY**

|                                  |                                                                                                                             |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Stability                        | Moisture sensitive.                                                                                                         |
| Hazardous Reactions              | Contact with water liberates toxic gas.                                                                                     |
| Hazardous Polymerization         | No information available.                                                                                                   |
| Conditions to Avoid              | Keep away from open flames, hot surfaces and sources of ignition. Incompatible products.<br>Exposure to moist air or water. |
| Materials to avoid               | Strong oxidizing agents. Strong bases.                                                                                      |
| Hazardous Decomposition Products | Carbon monoxide (CO). Carbon dioxide (CO <sub>2</sub> ). Oxides of phosphorus. Hydrogen chloride gas.                       |

**SECTION 11. TOXICOLOGICAL INFORMATION**

Product Information No acute toxicity information is available for this product

|                                            |                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (a) acute toxicity;                        |                                                                                                                                                                                                                                                                                                                                                                                 |
| (b) skin corrosion/irritation;             | Category 1 B                                                                                                                                                                                                                                                                                                                                                                    |
| (c) serious eye damage/irritation;         | Category 1                                                                                                                                                                                                                                                                                                                                                                      |
| (d) respiratory or skin sensitization;     |                                                                                                                                                                                                                                                                                                                                                                                 |
| Respiratory                                | No data available                                                                                                                                                                                                                                                                                                                                                               |
| Skin                                       | No data available                                                                                                                                                                                                                                                                                                                                                               |
| (e) germ cell mutagenicity;                | No data available                                                                                                                                                                                                                                                                                                                                                               |
| (f) carcinogenicity;                       | No data available                                                                                                                                                                                                                                                                                                                                                               |
|                                            | There are no known carcinogenic chemicals in this product                                                                                                                                                                                                                                                                                                                       |
| (g) reproductive toxicity;                 | No data available                                                                                                                                                                                                                                                                                                                                                               |
| (h) STOT-single exposure;                  | No data available                                                                                                                                                                                                                                                                                                                                                               |
| (i) STOT-repeated exposure;                | No data available                                                                                                                                                                                                                                                                                                                                                               |
| Target Organs                              | No information available.                                                                                                                                                                                                                                                                                                                                                       |
| (j) aspiration hazard;                     | No data available                                                                                                                                                                                                                                                                                                                                                               |
| Other Adverse Effects                      | The toxicological properties have not been fully investigated.                                                                                                                                                                                                                                                                                                                  |
| Symptoms / effects, both acute and delayed | Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: 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 |

**SECTION 12. ECOLOGICAL INFORMATION**

|                                 |                                                                           |
|---------------------------------|---------------------------------------------------------------------------|
| Ecotoxicity effects             | Do not empty into drains.                                                 |
| Persistence and Degradability   | No information available                                                  |
| Bioaccumulative Potential       | No information available                                                  |
| Mobility in soil                | No information available                                                  |
| Endocrine Disruptor Information | This product does not contain any known or suspected endocrine disruptors |
| Persistent Organic Pollutant    | This product does not contain any known or suspected substance            |
| Ozone Depletion Potential       | This product does not contain any known or suspected substance            |

**SECTION 13. DISPOSAL CONSIDERATIONS**

## Ethyl phosphorodichloridite

**Waste from Residues/Unused Products**

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

**Contaminated Packaging**

Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

**Other Information**

Waste codes should be assigned by the user based on the application for which the product was used. Do not flush to sewer. Can be landfilled or incinerated, when in compliance with local regulations. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

**SECTION 14. TRANSPORT INFORMATION****Road and Rail Transport**

**UN-No** UN2924  
**Proper Shipping Name** Flammable liquid, corrosive, n.o.s.  
**Hazard Class** 3  
**Subsidiary Hazard Class** 8  
**Packing Group** II

**IMDG/IMO**

**UN-No** UN2924  
**Proper Shipping Name** Flammable liquid, corrosive, n.o.s.  
**Hazard Class** 3  
**Subsidiary Hazard Class** 8  
**Packing Group** II

**IATA**

**UN-No** UN2924  
**Proper Shipping Name** FLAMMABLE LIQUID, CORROSIVE, N.O.S.\*  
**Hazard Class** 3  
**Subsidiary Hazard Class** 8  
**Packing Group** II

**Special Precautions for User** No special precautions required

**SECTION 15. REGULATORY INFORMATION****International Inventories**

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

| Component               | The Inventory of Hazardous Chemicals (2015 Edition) | List of dangerous goods GB 12268 - 2012 | TCSI | IECSC | EINECS    | TSCA | DSL | PICCS | ENCS | ISHL | AICS | KECL |
|-------------------------|-----------------------------------------------------|-----------------------------------------|------|-------|-----------|------|-----|-------|------|------|------|------|
| Ethyl dichlorophosphite | -                                                   | -                                       | X    | -     | 216-098-5 | -    | -   | -     | -    |      | -    | -    |

**National Regulations**

## Ethyl phosphorodichloridite

## SECTION 16. OTHER INFORMATION

**Prepared By** Health, Safety and Environmental Department  
**Creation Date** 02-Dec-2014  
**Revision Date** 26-Apr-2024  
**Revision Summary** New emergency telephone response service provider.

**Training Advice**

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

**Legend**

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

**PBT** - Persistent, Bioaccumulative, Toxic

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**PNEC** - Predicted No Effect Concentration

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** - (Volatile Organic Compound)

**Key literature references and sources for data**

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**