

ALFAAA13348

## Phosphorus(V) oxide

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

<b>产品说明:</b> Product Description:	<b>氧化磷(V)</b> Phosphorus(V) oxide
<b>Cat No. :</b> <b>Synonyms</b> <b>CAS No</b> <b>Molecular Formula</b>	<b>A13348</b> Phosphoric anhydride 1314-56-3 O5 P2
<b>Supplier</b>	Avocado Research Chemicals Ltd. (Part of Thermo Fisher Scientific) Shore Road, Heysham Lancashire, LA3 2XY, United Kingdom Office Tel: +44 (0) 1524 850506 Office Fax: +44 (0) 1524 850608
<b>Emergency Telephone Number</b>	For information <b>US</b> call: 001-800-227-6701 / <b>Europe</b> call: +32 14 57 52 11 Emergency Number <b>US</b> :001-201-796-7100 / <b>Europe</b> : +32 14 57 52 99 <b>CHEMTREC</b> Tel. No. <b>US</b> :001-800-424-9300 / <b>Europe</b> :001-703-527-3887
<b>E-mail address</b>	begel.sdsdesk@thermofisher.com
<b>Recommended Use</b> <b>Uses advised against</b>	Laboratory chemicals. No Information available

### SECTION 2. HAZARD IDENTIFICATION

<b>Physical State</b> Solid Powder	<b>Appearance</b> White	<b>Odor</b> Odorless
<b>Emergency Overview</b> Causes severe skin burns and eye damage. Reacts violently with water. Air sensitive. Hygroscopic.		

#### Classification of the substance or mixture

Skin Corrosion/Irritation	Category 1 A
Serious Eye Damage/Eye Irritation	Category 1

#### Label Elements



**Signal Word**

**Danger**

**Hazard Statements**

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H314 - Causes severe skin burns and eye damage

**Precautionary Statements****Prevention**

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

P271 - Use only outdoors or in a well-ventilated area

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

**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

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

**Storage**

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

**Disposal**

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

**Physical and Chemical Hazards**

Reacts violently with water. Hygroscopic.

**Health Hazards**

Corrosive. Causes skin and eye burns. Causes serious eye damage.

**Environmental hazards**

Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants. Reacts violently with water. Will likely be mobile in the environment due to its water solubility. Is not likely mobile in the environment. The product is water soluble, and may spread in water systems. Reacts violently with water.

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

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

Component	CAS No	Weight %
Phosphorus pentoxide	1314-56-3	<=100

**SECTION 4. FIRST AID MEASURES****General Advice**

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

**Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.

**Skin Contact**

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.

**Inhalation**

Remove to fresh air. If not breathing, give artificial respiration. Call a physician or poison control center immediately. 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.

**Ingestion**

Immediate medical attention is required. Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person.

**Most important symptoms and effects**

Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible

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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**

Substance is nonflammable; use agent most appropriate to extinguish surrounding fire. CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam.

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

Water.

**Specific Hazards Arising from the Chemical**

The product causes burns of eyes, skin and mucous membranes. Reacts violently with water.

**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.

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

Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing.

**Environmental Precautions**

Should not be released into the environment. Do not allow material to contaminate ground water system.

**Methods for Containment and Clean Up**

Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Do not expose spill to water.

Refer to protective measures listed in Sections 8 and 13.

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

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe dust. Do not ingest. If swallowed then seek immediate medical assistance. Do not allow contact with water. Handle under an inert atmosphere.

**Storage**

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Store under an inert atmosphere. Keep away from water or moist air. Protect from moisture.

**Specific Use(s)**

Use in laboratories

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

## Phosphorus(V) oxide

Component	China	Taiwan	Thailand	Hong Kong
Phosphorus pentoxide	Ceiling: 1 mg/m <sup>3</sup>	-		-

Component	ACGIH TLV	OSHA PEL	NIOSH	The United Kingdom	European Union
Phosphorus pentoxide				STEL: 2 mg/m <sup>3</sup> 15 min TWA: 1 mg/m <sup>3</sup> 8 hr	TWA: 1 mg/m <sup>3</sup> (8hr)

**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. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

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

Use only under a chemical fume hood. 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 (European standard - EN 166)

**Hand Protection** Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Natural rubber	See manufacturers recommendations	-	EN 374	(minimum requirement)
Nitrile rubber				
Neoprene	> 480 minutes	0.11 mm		
PVC				
Nitrile rubber				

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:** Particulates filter conforming to EN 143

**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:-** Particle filtering: EN149:2001  
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

## Phosphorus(V) oxide

<b>Appearance</b>	White	
<b>Physical State</b>	Solid Powder	
<b>Odor</b>	Odorless	
<b>Odor Threshold</b>	No data available	
<b>pH</b>	3.6	0.1 g/l aq. sol
<b>Melting Point/Range</b>	340 - 360 °C / 644 - 680 °F	
<b>Softening Point</b>	No data available	
<b>Boiling Point/Range</b>	No information available	
<b>Flash Point</b>	No information available	<b>Method</b> - No information available
<b>Evaporation Rate</b>	Not applicable	Solid
<b>Flammability (solid,gas)</b>	No information available	
<b>Explosion Limits</b>	No data available	
<b>Vapor Pressure</b>	1.3 mbar @ 388 °C	
<b>Vapor Density</b>	Not applicable	Solid
<b>Specific Gravity / Density</b>	No data available	
<b>Bulk Density</b>	No data available	
<b>Water Solubility</b>	Soluble, 85% (20°C), Reacts violently with water	
<b>Solubility in other solvents</b>	No information available	
<b>Partition Coefficient (n-octanol/water)</b>		
<b>Autoignition Temperature</b>	No data available	
<b>Decomposition Temperature</b>	No data available	
<b>Viscosity</b>	Not applicable	Solid
<b>Explosive Properties</b>	No information available	
<b>Oxidizing Properties</b>	No information available	
<b>Molecular Formula</b>	O5 P2	
<b>Molecular Weight</b>	141.94	

## SECTION 10. STABILITY AND REACTIVITY

<b>Stability</b>	Hygroscopic. Air sensitive. Reacts violently with water.
<b>Hazardous Reactions</b>	None under normal processing. Reacts violently with water.
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Conditions to Avoid</b>	Incompatible products. Excess heat. Avoid dust formation. Exposure to air. Exposure to moist air or water. Exposure to moisture.
<b>Materials to avoid</b>	Strong oxidizing agents. Metals. Bases. Ammonia. copper.
<b>Hazardous Decomposition Products</b>	No information available.

## SECTION 11. TOXICOLOGICAL INFORMATION

## Product Information

## (a) acute toxicity;

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Phosphorus pentoxide			LC50 = 1217 mg/m <sup>3</sup> ( Rat ) 1 h

(b) skin corrosion/irritation; Category 1 A

(c) serious eye damage/irritation; Category 1

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<b>(d) respiratory or skin sensitization;</b>	
<b>Respiratory</b>	Based on available data, the classification criteria are not met
<b>Skin</b>	Based on available data, the classification criteria are not met
<b>(e) germ cell mutagenicity;</b>	Based on available data, the classification criteria are not met
<b>(f) carcinogenicity;</b>	Based on available data, the classification criteria are not met There are no known carcinogenic chemicals in this product
<b>(g) reproductive toxicity;</b>	Based on available data, the classification criteria are not met
<b>(h) STOT-single exposure;</b>	Based on available data, the classification criteria are not met
<b>(i) STOT-repeated exposure;</b>	Based on available data, the classification criteria are not met
<b>Target Organs</b>	None known.
<b>(j) aspiration hazard;</b>	Not applicable Solid
<b>Symptoms / effects, both acute and delayed</b>	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**

<b>Ecotoxicity effects</b>	Do not empty into drains. Reacts with water so no ecotoxicity data for the substance is available.
<b>Persistence and Degradability</b>	
<b>Persistence</b>	Soluble in water, Persistence is unlikely, based on information available.
<b>Degradability</b>	Not relevant for inorganic substances, Reacts with water.
<b>Degradation in sewage treatment plant</b>	Reacts violently with water.
<b>Bioaccumulative Potential</b>	Bioaccumulation is unlikely; Product does not bioaccumulate due to reaction with water
<b>Mobility in soil</b>	The product is water soluble, and may spread in water systems Reacts violently with water Will likely be mobile in the environment due to its water solubility Is not likely mobile in the environment Highly mobile in soils
<b>Endocrine Disruptor Information</b>	This product does not contain any known or suspected endocrine disruptors
<b>Persistent Organic Pollutant</b>	This product does not contain any known or suspected substance
<b>Ozone Depletion Potential</b>	This product does not contain any known or suspected substance

**SECTION 13. DISPOSAL CONSIDERATIONS**

<b>Waste from Residues/Unused</b>	Waste is classified as hazardous. Dispose of in accordance with the European Directives
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<b>Products</b>	on waste and hazardous waste. Dispose of in accordance with local regulations.
<b>Contaminated Packaging</b>	Dispose of this container to hazardous or special waste collection point.
<b>Other Information</b>	Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not flush to sewer. Large amounts will affect pH and harm aquatic organisms. Solutions with low pH-value must be neutralized before discharge.

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

<b>UN-No</b>	UN1807
<b>Proper Shipping Name</b>	PHOSPHORUS PENTOXIDE
<b>Hazard Class</b>	8
<b>Packing Group</b>	II

**IMDG/IMO**

<b>UN-No</b>	UN1807
<b>Proper Shipping Name</b>	PHOSPHORUS PENTOXIDE
<b>Hazard Class</b>	8
<b>Packing Group</b>	II

**IATA**

<b>UN-No</b>	UN1807
<b>Proper Shipping Name</b>	PHOSPHORUS PENTOXIDE
<b>Hazard Class</b>	8
<b>Packing Group</b>	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
Phosphorus pentoxide	X	X	X	X	215-236-1	X	X	X	X	X	X	KE-12129

**National Regulations****SECTION 16. OTHER INFORMATION**

<b>Prepared By</b>	Health, Safety and Environmental Department
<b>Creation Date</b>	01-Sep-2010
<b>Revision Date</b>	30-Apr-2024

**Phosphorus(V) oxide****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**