

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**
**Product Identifier**

Perihal Produk: **Triphenylphosphine oxide**  
 Product Description: **Triphenylphosphine oxide**  
 Cat No. : S60237  
 CAS No 791-28-6  
 Molecular Formula C<sub>18</sub>H<sub>15</sub>O P

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

Recommended Use Laboratory chemicals.  
 Uses advised against No Information available

**Company**

Thermo Fisher Scientific Fisher Scientific (M) Sdn Bhd  
 Hap Seng Business Park, Lot 01-03, 01-04 Aras 1 Unity Square,  
 No 12, Persiaran Perusahaan, Seksyen 23, 40300 Shah Alam,  
 Selangor Darul Ehsan, Malaysia.  
 Main line: +60 3-5525 7888

**Supplier**

E-mail address Enquiry.my@thermofisher.com

**Emergency Telephone Number**

Tel: +03-5525 7888  
 CHEMTREC Malaysia **1-800-815-308** (Malay)  
 CHEMTREC Malaysia (Kuala Lumpur) **+(60)-327884561** (Malay)

**SECTION 2: HAZARDS IDENTIFICATION**
**Classification of the substance or mixture**

Acute oral toxicity	Category 4 (H302)
Skin Corrosion/Irritation	Category 2 (H315)
Serious Eye Damage/Eye Irritation	Category 2 (H319)
Specific target organ toxicity - (single exposure)	Category 3 (H335)
Chronic aquatic toxicity	Category 3 (H412)

**Label Elements**

**Signal Word**
**Warning**

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## Hazard Statements

H302 - Harmful if swallowed  
H315 - Causes skin irritation  
H319 - Causes serious eye irritation  
H335 - May cause respiratory irritation  
H412 - Harmful to aquatic life with long lasting effects

## Precautionary Statements

### Prevention

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray  
P264 - Wash face, hands and any exposed skin thoroughly after handling  
P270 - Do not eat, drink or smoke when using this product  
P271 - Use only outdoors or in a well-ventilated area  
P280 - Wear protective gloves/protective clothing/eye protection/face protection

### Response

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water  
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  
P312 - Call a POISON CENTER or doctor if you feel unwell  
P330 - Rinse mouth  
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

## Other Hazards

Toxic to terrestrial vertebrates  
This product does not contain any known or suspected endocrine disruptors

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight %
Phosphine oxide, triphenyl-	791-28-6	>95

## SECTION 4: FIRST AID MEASURES

### Description of first aid measures

#### General Advice

If symptoms persist, call a physician.

#### Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

#### Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

#### Ingestion

Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

#### Inhalation

Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

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**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.

**Most important symptoms and effects, both acute and delayed**

None reasonably foreseeable.

**Indication of any immediate medical attention and special treatment needed**

**Notes to Physician** Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

**Extinguishing media**

**Suitable Extinguishing Media**

Water spray, carbon dioxide (CO<sub>2</sub>), dry chemical, alcohol-resistant foam.

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

No information available.

**Special hazards arising from the substance or mixture**

Thermal decomposition can lead to release of irritating gases and vapors.

**Hazardous Combustion Products**

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Oxides of phosphorus, Phosphorus trihydride (phosphine).

**Advice for fire-fighters**

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, Protective Equipment and Emergency Procedures**

Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

**Environmental precautions**

Should not be released into the environment. Do not flush into surface water or sanitary sewer system.

**Methods and Material for Containment and Cleaning Up**

Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

**Reference to Other Sections**

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

**Precautions for Safe Handling**

Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

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## Conditions for Safe Storage, Including any Incompatibilities

Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

## Specific End Uses

Use in laboratories.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

### Exposure Controls

#### 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

#### **Skin and body protection**

Long sleeved clothing

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 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.

Remove gloves with care avoiding skin contamination.

#### **Respiratory Protection**

No protective equipment is needed under normal use conditions

### Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice

### Environmental exposure controls

Prevent product from entering drains

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

#### **Appearance**

Beige

#### **Physical State**

Powder Solid

#### **Odor**

No information available

#### **Odor Threshold**

No data available

#### **pH**

No information available

#### **Melting Point/Range**

154 - 158 °C / 309.2 - 316.4 °F

#### **Softening Point**

No data available

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Boiling Point/Range	> 360 °C	@ 760 mmHg
Flash Point	180 °C / 356 °F	<b>Method -</b> No information available

Evaporation Rate	Not applicable	Solid
Flammability (solid,gas)	No information available	
Explosion Limits	No data available	

Vapor Pressure	<1 mbar @ 50 °C	
Vapor Density	Not applicable	Solid
Specific Gravity / Density	No data available	
Bulk Density	No data available	
Water Solubility	Slightly soluble	
Solubility in other solvents	No information available	

Partition Coefficient (n-octanol/water)	
Component	log Pow
Phosphine oxide, triphenyl-	2.8

Autoignition Temperature	590 °C / 1094 °F	
Decomposition Temperature	> 375°C	
Viscosity	Not applicable	Solid
Explosive Properties	No information available	
Oxidizing Properties	No information available	

Molecular Formula	C18 H15 O P
Molecular Weight	278.28

## SECTION 10: STABILITY AND REACTIVITY

### Reactivity

None known, based on information available.

### Chemical Stability

Stable under normal conditions.

### Possibility of Hazardous Reactions

Hazardous Polymerization	No information available.
Hazardous Reactions	None under normal processing.

### Conditions to Avoid

Incompatible products.

### Incompatible Materials

Strong oxidizing agents. Strong acids.

### Hazardous Decomposition Products

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Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Oxides of phosphorus. Phosphorus trihydride (phosphine).

## SECTION 11: TOXICOLOGICAL INFORMATION

### Information on Toxicological Effects

#### Product Information

##### (a) acute toxicity;

Oral	Category 4
Dermal	No data available
Inhalation	No data available

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Phosphine oxide, triphenyl-	LD50 = 685 mg/kg ( Rat )	-	-

(b) skin corrosion/irritation; Category 2

(c) serious eye damage/irritation; Category 2

##### (d) respiratory or skin sensitization;

Respiratory	No data available
Skin	No data available

(e) germ cell mutagenicity; No data available  
Not mutagenic in AMES Test

(f) carcinogenicity; No data available  
There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

(h) STOT-single exposure; Category 3  
Results / Target organs Respiratory system.

(i) STOT-repeated exposure; No data available  
Target Organs No information available.

(j) aspiration hazard; Not applicable  
Solid

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

Symptoms / effects, both acute and delayed No information available.

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**Endocrine Disrupting Properties** Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

## SECTION 12: ECOLOGICAL INFORMATION

**Ecotoxicity effects** Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Contains a substance which is:. The product contains following substances which are hazardous for the environment. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Phosphine oxide, triphenyl-	LC50: 50.8 - 56.7 mg/L, 96h flow-through (Pimephales promelas)	EC50: = 42.7 mg/L, 48h (Daphnia magna)	EC50: = 20.6 mg/L, 96h (Desmodesmus subspicatus) EC50: = 18.1 mg/L, 72h (Desmodesmus subspicatus)	EC50 = 202 mg/L 15 min EC50 = 297 mg/L 30 min EC50 > 500 mg/L 17 h

**Persistence and degradability**  
**Persistence** Not readily biodegradable  
**Degradation in sewage treatment plant** based on information available, May persist.  
Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

**Bioaccumulative potential** May have some potential to bioaccumulate

Component	log Pow	Bioconcentration factor (BCF)
Phosphine oxide, triphenyl-	2.8	No data available

**Mobility in soil** No information available.

**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors

**Other adverse effects** No information available

## SECTION 13: DISPOSAL CONSIDERATIONS

**Waste treatment methods**  
**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.

**Other Information** Do not flush to sewer 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 let this chemical enter the environment

## SECTION 14: TRANSPORT INFORMATION

**IMDG/IMO** Not regulated

**Road and Rail Transport** Not regulated

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**IATA** Not regulated

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

## SECTION 15: REGULATORY INFORMATION

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

**International Inventories** X = listed

Component	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	IECSC	AICS	KECL
Phosphine oxide, triphenyl-	212-338-8	X	-	X	X	X	X	X	KE-34741

### National Regulations

**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 16: OTHER INFORMATION

### 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/NDL** - 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

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**POW** - Partition coefficient Octanol:Water

**TWA** - Time Weighted Average

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

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

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

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

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

**BCF** - Bioconcentration factor

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

**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

**Prepared By**

**Revision Date**

**Revision Summary**

Health, Safety and Environmental Department

01-Apr-2025

Not applicable.



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**In accordance with local and national regulations: Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013**

## **Disclaimer**

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**End of Safety Data Sheet**