



# SAFETY DATA SHEET

**MATERION**

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

**Name of the substance** Phosphorus oxide (P2O5)  
**Identification number** 015-010-00-0 (Index number)  
**Synonyms** None.  
**Document number** 1YX  
**Materion Code** 1YX  
**Issue date** 16-May-2015  
**Version number** 02  
**Revision date** 15-January-2018  
**Supersedes date** 16-May-2015

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

**Identified uses** Not available.  
**Uses advised against** None known.

### 1.3. Details of the supplier of the safety data sheet

#### Supplier

**Company name** Materion Advanced Chemicals Inc.  
**Address** 407 N. 13th Street  
1316 W. St. Paul Avenue  
Milwaukee, WI 53233  
United States  
**Division** Milwaukee  
**Telephone** 414.212.0257  
**e-mail** advancedmaterials@materion.com  
**Contact person** Noreen Atkinson

### 1.4. Emergency telephone number

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Classification according to Regulation (EC) No 1272/2008 as amended

##### Health hazards

Acute toxicity, inhalation	Category 2	H330 - Fatal if inhaled.
Skin corrosion/irritation	Category 1A	H314 - Causes severe skin burns and eye damage.
Serious eye damage/eye irritation	Category 1	H318 - Causes serious eye damage.

**Hazard summary** Not available.

### 2.2. Label elements

#### Label according to Regulation (EC) No. 1272/2008 as amended

**Contains:** Phosphorus Oxide  
**Hazard pictograms** None.  
**Signal word** Danger  
**Hazard statements**  
H314 Causes severe skin burns and eye damage.  
H318 Causes serious eye damage.  
H330 Fatal if inhaled.

### Precautionary statements

**Prevention**  
P260 Do not breathe dust.  
P264 Wash thoroughly after handling.  
P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P284 Wear respiratory 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/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 CENTRE/doctor.  
P320 Specific treatment is urgent (see this label).  
P363 Wash contaminated clothing before reuse.

#### Storage

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.

#### Disposal

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

#### Supplemental label information

None.

#### 2.3. Other hazards

None known.

### SECTION 3: Composition/information on ingredients

#### 3.1. Substances

##### General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Phosphorus Oxide	90 - 100	1314-56-3 215-236-1	-	015-010-00-0	#
<b>Classification:</b>	Skin Corr. 1A;H314, Eye Dam. 1;H318, Acute Tox. 2;H330				

### SECTION 4: First aid measures

**General information** Not available.

#### 4.1. Description of first aid measures

**Inhalation** Not available.

**Skin contact** Not available.

**Eye contact** Not available.

**Ingestion** Not available.

**4.2. Most important symptoms and effects, both acute and delayed** Not available.

**4.3. Indication of any immediate medical attention and special treatment needed** Not available.

### SECTION 5: Firefighting measures

**General fire hazards** Not available.

#### 5.1. Extinguishing media

**Suitable extinguishing media** Not available.

**Unsuitable extinguishing media** Not available.

**5.2. Special hazards arising from the substance or mixture** Not available.

#### 5.3. Advice for firefighters

**Special protective equipment for firefighters** Not available.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Not available.

For emergency responders Not available.

6.2. Environmental precautions Not available.

6.3. Methods and material for containment and cleaning up Not available.

6.4. Reference to other sections Not available.

## SECTION 7: Handling and storage

7.1. Precautions for safe handling Not available.

7.2. Conditions for safe storage, including any incompatibilities Not available.

7.3. Specific end use(s) Not available.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Occupational exposure limits

##### Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Material	Type	Value	Form
Phosphorus Oxide (CAS 1314-56-3)	Ceiling	2 mg/m <sup>3</sup>	Inhalable fraction.
	MAK	1 mg/m <sup>3</sup>	Inhalable fraction.

##### Belgium. Exposure Limit Values.

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	TWA	1 mg/m <sup>3</sup>

##### Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	TWA	1 mg/m <sup>3</sup>

##### Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	MAC	1 mg/m <sup>3</sup>
		0,2 ppm

##### Czech Republic. OELs. Government Decree 361

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	Ceiling	2 mg/m <sup>3</sup>
	TWA	1 mg/m <sup>3</sup>

##### Denmark. Exposure Limit Values

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	TLV	1 mg/m <sup>3</sup>

##### Estonia. OELs. Occupational Exposure Limits of Hazardous Substances. (Annex of Regulation No. 293 of 18 September 2001)

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	TWA	1 mg/m <sup>3</sup>

**Finland. Workplace Exposure Limits**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	Ceiling	5,9 mg/m3 1 ppm

**France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	VME	1 mg/m3

**Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)**

Material	Type	Value	Form
Phosphorus Oxide (CAS 1314-56-3)	TWA	2 mg/m3	Inhalable fraction.

**Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace**

Material	Type	Value	Form
Phosphorus Oxide (CAS 1314-56-3)	AGW	2 mg/m3	Inhalable fraction.

**Greece. OELs (Decree No. 90/1999, as amended)**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	STEL	2 mg/m3
	TWA	1 mg/m3

**Hungary. OELs. Joint Decree on Chemical Safety of Workplaces**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	TWA	1 mg/m3

**Iceland. OELs. Regulation 154/1999 on occupational exposure limits**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	TWA	1 mg/m3

**Ireland. Occupational Exposure Limits**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	TWA	1 mg/m3

**Italy. Occupational Exposure Limits**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	TWA	1 mg/m3

**Latvia. OELs. Occupational exposure limit values of chemical substances in work environment**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	TWA	1 mg/m3

**Lithuania. OELs. Limit Values for Chemical Substances, General Requirements**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	TWA	1 mg/m3

**Luxembourg. Binding Occupational exposure limit values (Annex I), Memorial A**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	TWA	1 mg/m3

**Malta. OELs. Occupational Exposure Limit Values (L.N. 227. of Occupational Health and Safety Authority Act (CAP. 424), Schedules I and V)**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	TWA	1 mg/m3

**Netherlands. OELs (binding)**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	STEL	5 mg/m3
	TWA	1 mg/m3

**Norway. Administrative Norms for Contaminants in the Workplace**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	TLV	1 mg/m3

**Poland. MACs. Regulation regarding maximum permissible concentrations and intensities of harmful factors in the work environment, Annex 1**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	STEL	2 mg/m3
	TWA	1 mg/m3

**Portugal. OELs. Decree-Law n. 290/2001 (Journal of the Republic - 1 Series A, n.266)**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	TWA	1 mg/m3

**Romania. OELs. Protection of workers from exposure to chemical agents at the workplace**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	STEL	1,5 mg/m3
	TWA	0,5 mg/m3

**Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	STEL	5 mg/m3
	TWA	1 mg/m3

**Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	TWA	1 mg/m3

**Spain. Occupational Exposure Limits**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	TWA	1 mg/m3

**Sweden. OELs. Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2015:7)**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	STEL	5 mg/m3
	TWA	1 mg/m3

**Switzerland. SUVA Grenzwerte am Arbeitsplatz**

Material	Type	Value	Form
Phosphorus Oxide (CAS 1314-56-3)	STEL	4 mg/m3	Inhalable dust.
	TWA	2 mg/m3	Inhalable dust.

**UK. EH40 Workplace Exposure Limits (WELs)**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	STEL	2 mg/m3
	TWA	1 mg/m3

**EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU**

Material	Type	Value
Phosphorus Oxide (CAS 1314-56-3)	TWA	1 mg/m3

<b>Biological limit values</b>	No biological exposure limits noted for the ingredient(s).
<b>Recommended monitoring procedures</b>	Not available.
<b>Derived no effect levels (DNELs)</b>	Not available.
<b>Predicted no effect concentrations (PNECs)</b>	Not available.

## 8.2. Exposure controls

**Appropriate engineering controls** Not available.

### Individual protection measures, such as personal protective equipment

**General information** Not available.

**Eye/face protection** Not available.

#### Skin protection

- **Hand protection** Not available.

- **Other** Not available.

**Respiratory protection** Not available.

**Thermal hazards** Not available.

**Hygiene measures** Not available.

**Environmental exposure controls** Not available.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### Appearance

**Physical state** Solid.

**Form** Not available.

**Colour** Not available.

**Odour** Not available.

**Odour threshold** Not available.

**pH** Not available.

**Melting point/freezing point** 562 °C (1043,6 °F)

**Initial boiling point and boiling range** Not available.

**Flash point** Not available.

**Evaporation rate** Not available.

**Flammability (solid, gas)** Not available.

#### Upper/lower flammability or explosive limits

**Flammability limit - lower (%)** Not available.

**Flammability limit - upper (%)** Not available.

**Vapour pressure** < 0,0000001 kPa at 25 °C

**Vapour density** Not available.

**Relative density** Not available.

#### Solubility(ies)

**Solubility (water)** Not available.

**Partition coefficient (n-octanol/water)** Not available.

**Auto-ignition temperature** Not available.

**Decomposition temperature** Not available.

**Viscosity** Not available.

**Explosive properties** Not available.

**Oxidising properties** Not available.

### 9.2. Other information

**Density** 2,30 g/cm3 estimated

<b>Molecular formula</b>	P4O10
<b>Molecular weight</b>	141,94 g/mol
<b>Specific gravity</b>	2,3

## SECTION 10: Stability and reactivity

<b>10.1. Reactivity</b>	Not available.
<b>10.2. Chemical stability</b>	Not available.
<b>10.3. Possibility of hazardous reactions</b>	Not available.
<b>10.4. Conditions to avoid</b>	Not available.
<b>10.5. Incompatible materials</b>	Not available.
<b>10.6. Hazardous decomposition products</b>	Not available.

## SECTION 11: Toxicological information

**General information** Not available.

### Information on likely routes of exposure

<b>Inhalation</b>	Not available.
<b>Skin contact</b>	Not available.
<b>Eye contact</b>	Not available.
<b>Ingestion</b>	Not available.

**Symptoms** Not available.

### 11.1. Information on toxicological effects

#### Acute toxicity

Product	Species	Test results
Phosphorus Oxide (CAS 1314-56-3)		
<b>Acute</b>		
<b>Inhalation</b>		
LC50	Guinea pig	0,061 mg/l, 1 Hours
	Mouse	0,271 mg/l, 1 Hours
	Rabbit	1,689 mg/l, 1 Hours
	Rat	1,217 mg/l, 1 Hours

**Skin corrosion/irritation** Not available.

**Serious eye damage/eye irritation** Not available.

**Respiratory sensitisation** Not available.

**Skin sensitisation** Not available.

**Germ cell mutagenicity** Not available.

#### Carcinogenicity

**Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)**

Not listed.

**Reproductive toxicity** Not available.

**Specific target organ toxicity - single exposure** Not available.

**Specific target organ toxicity - repeated exposure** Not available.

**Aspiration hazard** Not available.

**Mixture versus substance information** Not available.

**Other information** Not available.

## SECTION 12: Ecological information

**12.1. Toxicity** No toxicity data noted for the ingredient(s).

**12.2. Persistence and degradability** Not available.

<b>12.3. Bioaccumulative potential</b>	Not available.
<b>Partition coefficient n-octanol/water (log Kow)</b>	Not available.
<b>Bioconcentration factor (BCF)</b>	Not available.
<b>12.4. Mobility in soil</b>	Not available.
<b>12.5. Results of PBT and vPvB assessment</b>	Not a PBT or vPvB substance or mixture.
<b>12.6. Other adverse effects</b>	Not available.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

<b>Residual waste</b>	Not available.
<b>Contaminated packaging</b>	Not available.
<b>EU waste code</b>	Not available.

## SECTION 14: Transport information

### ADR

<b>14.1. UN number</b>	UN1807
<b>14.2. UN proper shipping name</b>	Phosphorus pentoxide
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	8
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	8
<b>Hazard No. (ADR)</b>	80
<b>Tunnel restriction code</b>	E
<b>14.4. Packing group</b>	II
<b>14.5. Environmental hazards</b>	No.
<b>14.6. Special precautions for user</b>	Not available.

### RID

<b>14.1. UN number</b>	UN1807
<b>14.2. UN proper shipping name</b>	Phosphorus pentoxide
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	8
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	8
<b>14.4. Packing group</b>	II
<b>14.5. Environmental hazards</b>	No.
<b>14.6. Special precautions for user</b>	Not available.

### ADN

<b>14.1. UN number</b>	UN1807
<b>14.2. UN proper shipping name</b>	Phosphorus pentoxide
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	8
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	8
<b>14.4. Packing group</b>	II
<b>14.5. Environmental hazards</b>	No.
<b>14.6. Special precautions for user</b>	Not available.

### IATA

<b>14.1. UN number</b>	UN1807
<b>14.2. UN proper shipping name</b>	Phosphorus pentoxide



**14.3. Transport hazard class(es)****Class** 8**Subsidiary risk** -**14.4. Packing group** II**14.5. Environmental hazards** No.**ERG Code** 8W**14.6. Special precautions for user** Not available.**Other information****Passenger and cargo aircraft** Allowed with restrictions.**Cargo aircraft only** Allowed with restrictions.**IMDG****14.1. UN number** UN1807**14.2. UN proper shipping name** PHOSPHORUS PENTOXIDE**14.3. Transport hazard class(es)****Class** 8**Subsidiary risk** -**14.4. Packing group** II**14.5. Environmental hazards****Marine pollutant** No.**EmS** F-A, S-B**14.6. Special precautions for user** Not available.**ADN; ADR; IATA; IMDG; RID****SECTION 15: Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulations****Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended**

Not listed.

**Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended**

Not listed.

**Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended**

Not listed.

**Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA**

Not listed.

**Authorisations**

**Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended**

Not listed.

**Restrictions on use**

**Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended**

Not listed.

**Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.**

Not listed.

**Other EU regulations**

**Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended**

Not listed.

**National regulations**

Not available.

**15.2. Chemical safety assessment**

Not available.

**SECTION 16: Other information**

**List of abbreviations**

Not available.

**Information on evaluation method leading to the classification of mixture**

Not available.