

## SAFETY DATA SHEET

Creation Date 19-Oct-2009

Revision Date 24-May-2017

Revision Number 3

### 1. Identification

**Product Name** PHOSPHORIC ACID  
**Cat No. :** A260-500  
**Synonyms** Orthophosphoric acid  
**Recommended Use** Laboratory chemicals.  
**Uses advised against** Not for food, drug, pesticide or biocidal product use

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

##### Company

Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

##### Emergency Telephone Number

CHEMTREC®, Inside the USA: 800-424-9300  
CHEMTREC®, Outside the USA: 001-703-527-3887

### 2. Hazard(s) identification

#### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Corrosive to metals	Category 1
Skin Corrosion/Irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1

#### Label Elements

##### **Signal Word**

Danger

##### **Hazard Statements**

May be corrosive to metals  
Causes severe skin burns and eye damage



##### **Precautionary Statements**

###### **Prevention**

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

Wash face, hands and any exposed skin thoroughly after handling

Keep only in original container

**Response**

Immediately call a POISON CENTER or doctor/physician

**Inhalation**

If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician

**Skin**

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

Wash contaminated clothing before reuse

**Eyes**

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

**Ingestion**

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

**Spills**

Absorb spillage to prevent material damage

**Storage**

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

Store in corrosive resistant polypropylene container with a resistant inliner

**Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

None identified

### 3. Composition / information on ingredients

Component	CAS-No	Weight %
Orthophosphoric acid	7664-38-2	>/= 85
Water	7732-18-5	</= 15

### 4. First-aid measures

<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
<b>Skin Contact</b>	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.
<b>Inhalation</b>	Move to fresh air. If not breathing, give artificial respiration. Obtain medical attention.
<b>Ingestion</b>	Drink plenty of water. Never give anything by mouth to an unconscious person. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Call a physician or Poison Control Center immediately.
<b>Most important symptoms/effects</b>	Causes burns by all exposure routes. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation
<b>Notes to Physician</b>	Treat symptomatically

### 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.
<b>Unsuitable Extinguishing Media</b>	No information available
<b>Flash Point</b>	No information available
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	No information available
<b>Explosion Limits</b>	

**Upper** No data available  
**Lower** No data available  
**Oxidizing Properties** Not applicable  
**Sensitivity to Mechanical Impact** No information available  
**Sensitivity to Static Discharge** No information available

**Specific Hazards Arising from the Chemical**

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Keep product and empty container away from heat and sources of ignition.

**Hazardous Combustion Products**

Oxides of phosphorus

**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.

**NFPA**

<b>Health</b>	<b>Flammability</b>	<b>Instability</b>	<b>Physical hazards</b>
3	0	1	N/A

**6. Accidental release measures**

**Personal Precautions** Use personal protective equipment. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing.  
**Environmental Precautions** Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. See Section 12 for additional ecological information. Do not flush into surface water or sanitary sewer system.

**Methods for Containment and Clean Up** Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

**7. Handling and storage**

**Handling** Use only under a chemical fume hood. Ensure adequate ventilation. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not breathe vapors/dust. Do not ingest.  
**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area.

**8. Exposure controls / personal protection**

**Exposure Guidelines**

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Orthophosphoric acid	TWA: 1 mg/m <sup>3</sup> STEL: 3 mg/m <sup>3</sup>	(Vacated) TWA: 1 mg/m <sup>3</sup> (Vacated) STEL: 3 mg/m <sup>3</sup> TWA: 1 mg/m <sup>3</sup>	IDLH: 1000 mg/m <sup>3</sup> TWA: 1 mg/m <sup>3</sup> STEL: 3 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup> STEL: 3 mg/m <sup>3</sup>

*Legend*

ACGIH - American Conference of Governmental Industrial Hygienists  
 OSHA - Occupational Safety and Health Administration  
 NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

**Engineering Measures** Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

**Personal Protective Equipment**

<b>Eye/face Protection</b>	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
<b>Skin and body protection</b>	Wear appropriate protective gloves and clothing to prevent skin exposure.
<b>Respiratory Protection</b>	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
<b>Hygiene Measures</b>	Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

<b>Physical State</b>	Liquid
<b>Appearance</b>	Clear, Viscous
<b>Odor</b>	Odorless
<b>Odor Threshold</b>	No information available
<b>pH</b>	< 2
<b>Melting Point/Range</b>	21 °C / 69.8 °F
<b>Boiling Point/Range</b>	158 °C / 316.4 °F
<b>Flash Point</b>	No information available
<b>Evaporation Rate</b>	Not applicable
<b>Flammability (solid,gas)</b>	Not applicable
<b>Flammability or explosive limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Vapor Pressure</b>	2 hPa @ 20°C
<b>Vapor Density</b>	3.4
<b>Specific Gravity</b>	1.680
<b>Solubility</b>	No information available
<b>Partition coefficient; n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	No information available
<b>Decomposition Temperature</b>	300 °C
<b>Viscosity</b>	3.86 mPas @ 20°C

## 10. Stability and reactivity

<b>Reactive Hazard</b>	None known, based on information available
<b>Stability</b>	Hygroscopic.
<b>Conditions to Avoid</b>	Incompatible products. Excess heat. Exposure to moisture.
<b>Incompatible Materials</b>	Strong oxidizing agents, Metals, Bases, Alcohols, Amines, halogenated agents
<b>Hazardous Decomposition Products</b>	Oxides of phosphorus
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Hazardous Reactions</b>	Contact with metals may evolve flammable hydrogen gas.

## 11. Toxicological information

### Acute Toxicity

#### **Product Information**

##### **Oral LD50**

Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

##### **Dermal LD50**

Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

##### **Vapor LC50**

Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

#### **Component Information**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Orthophosphoric acid	2600 mg/kg (Rat)	LD50 = 2740 mg/kg ( Rabbit )	850 mg/m <sup>3</sup> ( Rat ) 1 h
Water	-	Not listed	Not listed

**Toxicologically Synergistic Products** No information available

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Irritation** Causes burns by all exposure routes

**Sensitization** No information available

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Orthophosphoric acid	7664-38-2	Not listed				
Water	7732-18-5	Not listed				

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** None known

**STOT - repeated exposure** None known

**Aspiration hazard** No information available

**Symptoms / effects, both acute and delayed** Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

**Endocrine Disruptor Information** No information available

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

## 12. Ecological information

### Ecotoxicity

Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Orthophosphoric acid	Not listed	98 - 106 mg/L LC50 96 h	Not listed	> 100 mg/L EC50 = 48 h

**Persistence and Degradability** Miscible with water. Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation** Does not bioaccumulate.

**Mobility** Will likely be mobile in the environment due to its water solubility.

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## 14. Transport information

### DOT

**UN-No** UN1805  
**Proper Shipping Name** PHOSPHORIC ACID SOLUTION  
**Hazard Class** 8

<b>Packing Group</b>	III
<b>TDG</b>	
<b>UN-No</b>	UN1805
<b>Proper Shipping Name</b>	PHOSPHORIC ACID, SOLUTION
<b>Hazard Class</b>	8
<b>Packing Group</b>	III
<b>IATA</b>	
<b>UN-No</b>	UN1805
<b>Proper Shipping Name</b>	PHOSPHORIC ACID, SOLUTION
<b>Hazard Class</b>	8
<b>Packing Group</b>	III
<b>IMDG/IMO</b>	
<b>UN-No</b>	UN1805
<b>Proper Shipping Name</b>	PHOSPHORIC ACID SOLUTION
<b>Hazard Class</b>	8
<b>Packing Group</b>	III

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

**International Inventories**

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Orthophosphoric acid	X	X	-	231-633-2	-		X	X	X	X	X
Water	X	X	-	231-791-2	-		X	-	X	X	X

**Legend:**

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

**U.S. Federal Regulations**

TSCA 12(b) Not applicable

SARA 313 Not applicable

**SARA 311/312 Hazard Categories**

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

**CWA (Clean Water Act)**

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Orthophosphoric acid	X	5000 lb	-	-

Clean Air Act Not applicable

**OSHA** Occupational Safety and Health Administration  
Not applicable

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Orthophosphoric acid	5000 lb	-

**California Proposition 65** This product does not contain any Proposition 65 chemicals

**U.S. State Right-to-Know Regulations**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Orthophosphoric acid	X	X	X	-	X
Water	-	-	X	-	-

**U.S. Department of Transportation**

Reportable Quantity (RQ): Y  
DOT Marine Pollutant N  
DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security**

This product does not contain any DHS chemicals.

**Other International Regulations**

**Mexico - Grade** No information available

**16. Other information**

**Prepared By** Regulatory Affairs  
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Email: EMSDS.RA@thermofisher.com

**Creation Date** 19-Oct-2009  
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**Revision Summary** This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

**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 SDS**