

SAFETY DATA SHEET

1. Identification

Product identifier: PHOSPHORIC ACID

Other means of identification

Synonyms: Ortho-Phosphoric Acid, White Phosphoric Acid

Product No.: 0240, 6908, 2798, 2797, 5854, 2796, 5804, 2788, 0259, 5372, 0274, 0269, 0268, 0265, 0264, 0262, 0260, 0255, 0251, 6168

Recommended use and restriction on use

Recommended use: Not available.

Restrictions on use: Not known.

Details of the supplier of the safety data sheet

Manufacturer

Company Name: Avantor Performance Materials, Inc.
Address: 3477 Corporate Parkway, Suite 200
Center Valley, PA 18034

Telephone: Customer Service: 855-282-6867

Fax: 610-573-2610
Contact Person: Environmental Health & Safety
E-mail: info@avantormaterials.com

Emergency telephone number:

CHEMTREC: 1-800-424-9300 within US and Canada
CHEMTREC: 1-703-527-3887 outside US and Canada

2. Hazard(s) identification

Hazard Classification

Physical Hazards

Corrosive to metals Category 1

Health Hazards

Acute toxicity (Oral) Category 4
Skin Corrosion/Irritation Category 1
Serious Eye Damage/Eye Irritation Category 1
Specific Target Organ Toxicity - Category 3
Single Exposure

Unknown toxicity - Health

| | |
|--|-------|
| Acute toxicity, oral | 0 % |
| Acute toxicity, dermal | 0 % |
| Acute toxicity, inhalation, vapor | 100 % |
| Acute toxicity, inhalation, dust or mist | 100 % |

Unknown toxicity - Environment

| | |
|--|------|
| Acute hazards to the aquatic environment | 84 % |
|--|------|

Chronic hazards to the aquatic environment

84 %

Label Elements

Hazard Symbol:



Signal Word: Danger

Hazard Statement: May be corrosive to metals.
Harmful if swallowed.
Causes severe skin burns and eye damage.
May cause respiratory irritation.

Precautionary Statement

Prevention: Keep only in original container. Do not breathe dust/fume/mist/vapors. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling.

Response: Absorb spillage to prevent material damage. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

Storage: Store locked up. Store in a well-ventilated place. Keep container tightly closed. Store in corrosive resistant container with a resistant inner liner.

Disposal: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in GHS classification: None.

3. Composition/information on ingredients

Mixtures

| Chemical Identity | Common name and synonyms | CAS number | Content in percent (%)* |
|-------------------|--------------------------|------------|-------------------------|
| PHOSPHORIC ACID | | 7664-38-2 | 80 - 90% |

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

General information: Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

| | |
|----------------------|--|
| Ingestion: | Do NOT induce vomiting. Call a physician or poison control center immediately. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. |
| Inhalation: | Move to fresh air. Call a physician or poison control center immediately. Apply artificial respiration if victim is not breathing. If breathing is difficult, give oxygen. |
| Skin Contact: | Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician or poison control center immediately. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes. |
| Eye contact: | Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately. In case of irritation from airborne exposure, move to fresh air. Get medical attention immediately. |

Most important symptoms/effects, acute and delayed

| | |
|------------------|---|
| Symptoms: | Causes severe skin and eye burns. Causes digestive tract burns. |
|------------------|---|

Indication of immediate medical attention and special treatment needed

| | |
|-------------------|---|
| Treatment: | Treat symptomatically. Symptoms may be delayed. |
|-------------------|---|

5. Fire-fighting measures

| | |
|------------------------------|---|
| General Fire Hazards: | Product is highly acidic. Wear protective gear if spilled during fire fighting. |
|------------------------------|---|

Suitable (and unsuitable) extinguishing media

| | |
|--------------------------------------|---|
| Suitable extinguishing media: | The product is non-combustible. Use fire-extinguishing media appropriate for surrounding materials. |
|--------------------------------------|---|

| | |
|--|-------------|
| Unsuitable extinguishing media: | None known. |
|--|-------------|

| | |
|--|---|
| Specific hazards arising from the chemical: | Not combustible, but if involved in a fire decomposes to produce toxic gases. |
|--|---|

Special protective equipment and precautions for firefighters

| | |
|--|---|
| Special fire fighting procedures: | Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. |
|--|---|

| | |
|--|--|
| Special protective equipment for fire-fighters: | Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Product is highly acidic. Wear protective gear if spilled during fire fighting. |
|--|--|

6. Accidental release measures

| | |
|---|--|
| Personal precautions, protective equipment and emergency procedures: | See Section 8 of the SDS for Personal Protective Equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep unauthorized personnel away. Keep upwind. Ventilate closed spaces before entering them. |
|---|--|

Methods and material for containment and cleaning up: Neutralize with lime or soda ash. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

Notification Procedures: Inform authorities if large amounts are involved.

Environmental Precautions: Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so.

7. Handling and storage

Precautions for safe handling: Do not get in eyes, on skin, on clothing. Do not taste or swallow. Wash thoroughly after handling. Do not eat, drink or smoke when using the product. Use caution when adding this material to water. Add material slowly when mixing with water. Do not add water to the material; instead, add the material to the water.

Conditions for safe storage, including any incompatibilities: Do not store in metal containers. Keep container tightly closed. Store in a well-ventilated place.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

| Chemical Identity | type | Exposure Limit Values | Source |
|-------------------|------|-----------------------|---|
| PHOSPHORIC ACID | TWA | 1 mg/m ³ | US. ACGIH Threshold Limit Values (2011) |
| | STEL | 3 mg/m ³ | US. ACGIH Threshold Limit Values (2011) |
| | REL | 1 mg/m ³ | US. NIOSH: Pocket Guide to Chemical Hazards (2010) |
| | STEL | 3 mg/m ³ | US. NIOSH: Pocket Guide to Chemical Hazards (2010) |
| | PEL | 1 mg/m ³ | US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006) |
| | TWA | 1 mg/m ³ | US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989) |
| | STEL | 3 mg/m ³ | US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989) |
| | | | |

Appropriate Engineering Controls No data available.

Individual protection measures, such as personal protective equipment

General information: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area.

Eye/face protection: Wear safety glasses with side shields (or goggles) and a face shield.

Skin Protection

Hand Protection: Chemical resistant gloves

Other: Wear suitable protective clothing and gloves.

| | |
|--------------------------------|---|
| Respiratory Protection: | In case of inadequate ventilation use suitable respirator. Respirator type: Chemical respirator with acid gas cartridge. |
| Hygiene measures: | Provide eyewash station and safety shower. Observe good industrial hygiene practices. Wash hands before breaks and immediately after handling the product. Wash contaminated clothing before reuse. Avoid contact with eyes. Avoid contact with skin. |

9. Physical and chemical properties

Appearance

| | |
|--|----------------------------|
| Physical state: | liquid |
| Form: | liquid |
| Color: | Colorless |
| Odor: | Odorless |
| Odor threshold: | No data available. |
| pH: | 1.5 0.1 N Aqueous solution |
| Melting point/freezing point: | 21.1 °C |
| Initial boiling point and boiling range: | 158 °C |
| Flash Point: | not applicable |
| Evaporation rate: | No data available. |
| Flammability (solid, gas): | No data available. |
| Upper/lower limit on flammability or explosive limits | |
| Flammability limit - upper (%): | No data available. |
| Flammability limit - lower (%): | No data available. |
| Explosive limit - upper (%): | No data available. |
| Explosive limit - lower (%): | No data available. |
| Vapor pressure: | 0.3 kPa |
| Vapor density: | No data available. |
| Relative density: | 1.69 (20 °C) |
| Solubility(ies) | |
| Solubility in water: | Miscible with water. |
| Solubility (other): | No data available. |
| Partition coefficient (n-octanol/water): | No data available. |
| Auto-ignition temperature: | No data available. |
| Decomposition temperature: | No data available. |
| Viscosity: | No data available. |

10. Stability and reactivity

| | |
|--|---|
| Reactivity: | No dangerous reaction known under conditions of normal use. |
| Chemical Stability: | Material is stable under normal conditions. |
| Possibility of hazardous reactions: | Hazardous polymerization does not occur. |
| Conditions to avoid: | Avoid contact with oxidizing agents. Avoid contact with strong reducing agents. Contact with alkalis. |
| Incompatible Materials: | Strong reducing agents. Alkalies. Strong oxidizing agents. Metals. |
| Hazardous Decomposition Products: | oxides of phosphorus |

11. Toxicological information**Information on likely routes of exposure**

| | |
|----------------------|--|
| Ingestion: | Harmful if swallowed. |
| Inhalation: | Severely irritating to respiratory system. |
| Skin Contact: | Causes severe skin burns. |
| Eye contact: | Causes serious eye damage. |

Information on toxicological effects**Acute toxicity (list all possible routes of exposure)**

Oral
Product: ATEmix (Rat): 1,700 mg/kg

Dermal
Product: ATEmix (): 3,044.44 mg/kg

Inhalation
Product: No data available.

Repeated dose toxicity
Product: No data available.

Skin Corrosion/Irritation
Product: Causes severe skin burns.

Serious Eye Damage/Eye Irritation
Product: Causes serious eye damage.

Respiratory or Skin Sensitization
Product: Not a skin sensitizer.

Carcinogenicity
Product: This substance has no evidence of carcinogenic properties.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:
No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:
No carcinogenic components identified

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):
No carcinogenic components identified

Germ Cell Mutagenicity

In vitro
Product: No mutagenic components identified

In vivo
Product: No mutagenic components identified

Reproductive toxicity
Product: No components toxic to reproduction

Specific Target Organ Toxicity - Single Exposure
Product: None known.

Specific Target Organ Toxicity - Repeated Exposure**Product:** None known.**Aspiration Hazard****Product:** Not classified**Other effects:** Not known.**12. Ecological information****Ecotoxicity:****Acute hazards to the aquatic environment:****Fish****Product:** No data available.**Aquatic Invertebrates****Product:** No data available.**Chronic hazards to the aquatic environment:****Fish****Product:** No data available.**Aquatic Invertebrates****Product:** No data available.**Toxicity to Aquatic Plants****Product:** No data available.**Persistence and Degradability****Biodegradation****Product:** Expected to be readily biodegradable.**BOD/COD Ratio****Product:** No data available.**Bioaccumulative Potential****Bioconcentration Factor (BCF)****Product:** No data available on bioaccumulation.**Partition Coefficient n-octanol / water (log K_{ow})****Product:** No data available.**Mobility in Soil:** The product is water soluble and may spread in water systems.**Other Adverse Effects:** The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.**13. Disposal considerations****Disposal instructions:** Discharge, treatment, or disposal may be subject to national, state, or local laws.**Contaminated Packaging:** Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

| | |
|-------------------------------|--------------------------|
| UN Number: | UN 1805 |
| UN Proper Shipping Name: | Phosphoric acid solution |
| Transport Hazard Class(es) | |
| Class(es): | 8 |
| Label(s): | 8 |
| Packing Group: | III |
| Marine Pollutant: | Not a Marine Pollutant |
| Special precautions for user: | — |

IMDG

| | |
|-------------------------------|--------------------------|
| UN Number: | UN 1805 |
| UN Proper Shipping Name: | PHOSPHORIC ACID SOLUTION |
| Transport Hazard Class(es) | |
| Class(es): | 8 |
| Label(s): | 8 |
| EmS No.: | F-A, S-B |
| Packing Group: | III |
| Marine Pollutant: | Not a Marine Pollutant |
| Special precautions for user: | — |

IATA

| | |
|-------------------------------|---------------------------|
| UN Number: | UN 1805 |
| Proper Shipping Name: | Phosphoric acid, solution |
| Transport Hazard Class(es): | |
| Class(es): | 8 |
| Label(s): | 8 |
| Marine Pollutant: | Not a Marine Pollutant |
| Packing Group: | III |
| Special precautions for user: | — |

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

| <u>Chemical Identity</u> | <u>Reportable quantity</u> |
|--------------------------|----------------------------|
| PHOSPHORIC ACID | 5000 lbs. |

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Acute (Immediate)
Chronic (Delayed)

SARA 302 Extremely Hazardous Substance

None present or none present in regulated quantities.

SARA 304 Emergency Release Notification

| <u>Chemical Identity</u> | <u>Reportable quantity</u> |
|--------------------------|----------------------------|
| PHOSPHORIC ACID | 5000 lbs. |

SARA 311/312 Hazardous Chemical

| | |
|---------------------------------|---|
| <u>Chemical Identity</u> | <u>Threshold Planning Quantity</u> |
| PHOSPHORIC ACID | 10000 lbs |

SARA 313 (TRI Reporting)

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

| | |
|---------------------------------|-----------------------------------|
| <u>Chemical Identity</u> | <u>Reportable quantity</u> |
| PHOSPHORIC ACID | Reportable quantity: 5000 lbs. |

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65

No ingredient regulated by CA Prop 65 present.

US. New Jersey Worker and Community Right-to-Know Act

Chemical Identity
PHOSPHORIC ACID

US. Massachusetts RTK - Substance List

Chemical Identity
PHOSPHORIC ACID

US. Pennsylvania RTK - Hazardous Substances

Chemical Identity
PHOSPHORIC ACID

US. Rhode Island RTK

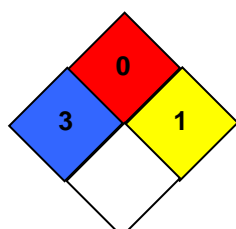
Chemical Identity
PHOSPHORIC ACID

Inventory Status:

| | |
|--|--|
| Australia AICS: | On or in compliance with the inventory |
| Canada DSL Inventory List: | On or in compliance with the inventory |
| EINECS, ELINCS or NLP: | On or in compliance with the inventory |
| Japan (ENCS) List: | On or in compliance with the inventory |
| China Inv. Existing Chemical Substances: | Not in compliance with the inventory. |
| Korea Existing Chemicals Inv. (KECI): | On or in compliance with the inventory |
| Canada NDSL Inventory: | Not in compliance with the inventory. |
| Philippines PICCS: | On or in compliance with the inventory |
| US TSCA Inventory: | On or in compliance with the inventory |
| New Zealand Inventory of Chemicals: | On or in compliance with the inventory |
| Japan ISHL Listing: | Not in compliance with the inventory. |
| Japan Pharmacopoeia Listing: | Not in compliance with the inventory. |

16. Other information, including date of preparation or last revision

NFPA Hazard ID



| | |
|--|-----------------|
| | Flammability |
| | Health |
| | Reactivity |
| | Special hazard. |

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible

Issue Date: 10-14-2015

Revision Date: No data available.

Version #: 1.2

Further Information: No data available.

Disclaimer: THE INFORMATION PRESENTED IN THIS MATERIAL SAFETY DATA SHEET (MSDS/SDS) WAS PREPARED BY TECHNICAL PERSONNEL BASED ON DATA THAT THEY BELIEVE IN THEIR GOOD FAITH JUDGMENT IS ACCURATE. HOWEVER, THE INFORMATION PROVIDED HEREIN IS PROVIDED "AS IS," AND AVANTOR PERFORMANCE MATERIALS MAKES AND GIVES NO REPRESENTATIONS OR WARRANTIES WHATSOEVER, AND EXPRESSLY DISCLAIMS ALL WARRANTIES REGARDING SUCH INFORMATION AND THE PRODUCT TO WHICH IT RELATES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING WITHOUT LIMITATION, WARRANTIES OF ACCURACY, COMPLETENESS, MERCHANTABILITY, NON-INFRINGEMENT, PERFORMANCE, SAFETY, SUITABILITY, STABILITY, AND FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE OF TRADE. THIS MSDS/SDS IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONARY HANDLING OF THE MATERIAL BY A PROPERLY TRAINED PERSON USING THIS PRODUCT, AND IS NOT INTENDED TO BE COMPREHENSIVE AS TO THE MANNER AND CONDITIONS OF USE, HANDLING, STORAGE, OR DISPOSAL OF THE PRODUCT. INDIVIDUALS RECEIVING THIS MSDS/SDS MUST ALWAYS EXERCISE THEIR OWN INDEPENDENT JUDGMENT IN DETERMINING THE APPROPRIATENESS OF SUCH ISSUES. ACCORDINGLY, AVANTOR PERFORMANCE MATERIALS ASSUMES NO LIABILITY WHATSOEVER FOR THE USE OF OR RELIANCE UPON THIS INFORMATION. NO SUGGESTIONS FOR USE ARE INTENDED AS, AND NOTHING HEREIN SHALL BE CONSTRUED AS, A RECOMMENDATION TO INFRINGE ANY EXISTING PATENTS OR TO VIOLATE ANY FEDERAL, STATE, LOCAL, OR FOREIGN LAWS. AVANTOR PERFORMANCE MATERIALS REMINDS YOU THAT IT IS YOUR LEGAL DUTY TO MAKE ALL INFORMATION IN THIS MSDS/SDS AVAILABLE TO YOUR EMPLOYEES.