Material Safety Data Sheet

Section 1 - Product and Company Information

Product Name: PHOSPHORIC ACID, CRYSTALS, 98%+
Product Number: 310271
Brand: Aldrich Chemical
Company: Sigma-Aldrich
Street Address: 3050 Spruce Street
City, State, Zip, Country: SAINT LOUIS, MO 63102 US
Technical Phone: 314 771 5795
Fax: 800 325 5032
Emergency Phone: 414 273 3650 Ext. 5996

Section 2 - Composition/Information on Ingredient

Substance Name: PHOSPHORIC ACID
CAS #: 7664-38-2
SARA 313: Yes
Formula: H3PO4
Synonyms: Acido phosphorico (French), Acido fosforico (Italian), Fosforzusätze (Dutch), Hydrogen phosphate, Orthophosphoric acid, Phosphoric acid (ACGIH/OSHA), Phosphorusrussatz (German)

Section 3 - Hazards Identification

Emergency Overview: Corrosive. Causes burn. Harmful if swallowed. Target organ(s): Liver, Blood.
HMIS Rating:
Health: 3*
Reactivity: 0
Flammability: 0
NFPA Ratings:
Health: 3*
Reactivity: 0
Flammability: 0
*Chronic hazards present. For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

Oral Exposure: If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.
Inhalation Exposure: If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.
Dermal Exposure: In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

Section 5 - Fire Fighting Measures

Autoignition Temp: N/A
Extinguishing Media:
Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

Firefighting Protective Equipment:
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s):
Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

Procedure to be Followed in Case of Leak or Spill:
Evacuate area.

Procedure(s) of Personal Precaution(s):
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

Methods for Cleaning Up:
Sweep up, place in a bag and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling:
User Exposure:
Do not breathe dust. Do not get in eyes, on skin, or on clothing. Avoid prolonged or repeated exposure.

Storage:

Section 8 - Exposure Controls / PPE

Engineering Controls:
Safety shower and eye bath. Use only in a chemical fume hood.

Personal Protective Equipment:
Respiratory:
NOSH/MSHA-approved respirator.

Hand:
Compatible chemical-resistant gloves.

Eye:
Chemical safety goggles.

General Hygiene Measures:
Wear contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

Exposure Limits, ACGIH

<table>
<thead>
<tr>
<th>Country</th>
<th>Source</th>
<th>Type</th>
<th>Value</th>
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<tbody>
<tr>
<td>USA</td>
<td>STEL</td>
<td>5 MG/M3</td>
<td></td>
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<tr>
<td>USA</td>
<td>TWA</td>
<td>1 MG/M3</td>
<td></td>
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<tr>
<td>USA</td>
<td>OSHA</td>
<td>PEL</td>
<td>8H TWA 1 MG/M3</td>
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Aldrich Chemical - 310271
Page 2
Sigma-Aldrich Corporation
www.sigma-aldrich.com
Section 9 - Physical/Chemical Properties

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Physical State</th>
<th>Color</th>
<th>Form</th>
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<tr>
<td>Solid</td>
<td>Molecular Weight</td>
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<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
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<td>pH</td>
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<tr>
<td>BP/SP Range</td>
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<tr>
<td>MP/SP Range</td>
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<tr>
<td>Freezing Point</td>
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<tr>
<td>Vapor Pressure</td>
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<td>Vapor Density</td>
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<td>SG/Density</td>
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<td>Bulk Density</td>
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<tr>
<td>Odor Threshold</td>
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<td>Flash Point °F</td>
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<tr>
<td>Flash Point °C</td>
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<td>Explosion Limits</td>
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<td>Asphalitn Temp</td>
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<tr>
<td>Solubility</td>
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Section 10 - Stability and Reactivity

Stability
Conditions to Avoid
Protect from moisture.
Materials to Avoid
Strong bases, Finely powdered metals.

Hazardous Decomposition Products
Hazardous Decomposition Products
Thermal decomposition may produce toxic fumes of phosphorus oxides and/or phosphine.

Hazardous Polymerization
Hazardous Polymerization
Will not occur.

Section 11 - Toxicological Information

Route of Exposure
Skin Contact
Causes burns.
Skin Absorption
May be harmful if absorbed through the skin.
Eye Contact
Causes burns.

Section 12 - Ecological Information

Section 13 - Disposal Considerations

Appropriate Method of Disposal of Substance or Preparation
Contact a licensed professional waste disposal service to dispose of this material. 
Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
Proper Shipping Name: Phosphoric acid
UN No.: 1805
Class: 8
Packing Group: Packing Group III
PH: Not PH

IATA
Proper Shipping Name: Phosphoric acid
IATA Number: 1805
Hazard Class: 8
Packing Group: III
Section 15 - Regulatory Information

EU Directives Classification
Symbol of Danger: C
Indication of Danger
Corrosive.
Risk Statements
R: 34
Causes burns.
Safety Statements
S: 26 45
In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US Classification and Label Text
Indication of Danger
Corrosive.
Risk Statements
Causes burns. Harmful if swallowed.
Safety Statements
In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Wear suitable protective clothing, gloves, and eyewear protection.
US Statements
Target organ(s): Liver, Blood.
Handling and Storage

United States Regulatory Information
SARA 313 Listed: Yes
Demarcations: 1%
Notes: This product is subject to SARA section 313 reporting requirements.
TSCA Inventory Item: Yes

Section 16 - Other Information

Warranty
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2002 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.