Material Safety Data Sheet
Phosphoric acid, 85%

ACC# 18691

Section 1 - Chemical Product and Company Identification

**MSDS Name:** Phosphoric acid, 85%

**Synonyms:** Orthophosphoric acid; White phosphoric acid.

**Company Identification:**
Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

*For information, call:* 201-796-7100
*Emergency Number:* 201-796-7100
*For CHEMTREC assistance, call:* 800-424-9300
*For International CHEMTREC assistance, call:* 703-527-3887

Section 2 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
<th>EINECS/ELINCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>7664-38-2</td>
<td>Phosphoric acid</td>
<td>&gt;85</td>
<td>231-633-2</td>
</tr>
<tr>
<td>7732-18-5</td>
<td>Water</td>
<td>&lt;15</td>
<td>231-791-2</td>
</tr>
</tbody>
</table>

Section 3 - Hazards Identification

**EMERGENCY OVERVIEW**

Appearance: colorless viscous clear liquid.

**Danger!** Causes burns by all exposure routes.
**Target Organs:** Eyes, skin, mucous membranes.

**Potential Health Effects**

**Eye:** May cause irreversible eye injury. Contact with liquid is corrosive to the eyes and causes severe burns.

**Skin:** Contact with liquid is corrosive and causes severe burns and ulceration. The severity of injury depends on the concentration of the solution and the duration of exposure.

**Ingestion:** Causes gastrointestinal tract burns. May cause corrosion and permanent tissue destruction of the esophagus and digestive tract.

**Inhalation:** Causes chemical burns to the respiratory tract. Because its vapor pressure is negligible, it exists in the air only as a mist or spray.

**Chronic:** Prolonged or repeated skin contact may cause dermatitis.

Section 4 - First Aid Measures

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

**Skin:** Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing
contaminated clothing and shoes. **Ingestion:** Get medical aid immediately. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water. **Inhalation:** Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Get medical aid. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. **Notes to Physician:** Persons with pre-existing skin disorders or impaired respiratory or pulmonary function may be at increased risk to the effects of this substance. Treat symptomatically and supportively.

**Section 5 - Fire Fighting Measures**

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Substance is noncombustible. Contact with metals may evolve flammable hydrogen gas. **Extinguishing Media:** Use water spray, dry chemical, carbon dioxide, or chemical foam. **Flash Point:** Not applicable. **Autoignition Temperature:** Not applicable. **Explosion Limits, Lower:** Not available. **Upper:** Not available. **NFPA Rating:** (estimated) Health: 3; Flammability: 0; Instability: 1

**Section 6 - Accidental Release Measures**

**General Information:** Use proper personal protective equipment as indicated in Section 8. **Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation. Spill may be carefully neutralized with lime (calcium oxide, CaO).

**Section 7 - Handling and Storage**

**Handling:** Wash thoroughly after handling. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Use with adequate ventilation. **Storage:** Keep container closed when not in use. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from metals. Do not store in metal containers. Store protected from moisture. Store away from alkalies.

**Section 8 - Exposure Controls, Personal Protection**

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. **Exposure Limits**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphoric acid</td>
<td>1 mg/m3 TWA; 3 mg/m3 STEL</td>
<td>1 mg/m3 TWA 1000 mg/m3 1IDLH</td>
<td>1 mg/m3 TWA</td>
</tr>
<tr>
<td>Water</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

**OSHA Vacated PELs:** Phosphoric acid: 1 mg/m3 TWA Water: No OSHA Vacated PELs are listed for this chemical. **Personal Protective Equipment**

**Eyes:** 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.

**Skin:** Wear butyl rubber gloves, apron, and/or clothing.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** 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.

### Section 9 - Physical and Chemical Properties

**Physical State:** Clear liquid  
**Appearance:** APHA: 10 max - colorless viscous  
**Odor:** odorless  
**pH:** 1.5 (0.1N aq. soln)  
**Vapor Pressure:** 0.03 mm Hg @ 20 deg C  
**Vapor Density:** 3.4 (air=1)  
**Evaporation Rate:** Not available.  
**Viscosity:** 3.86 mPa.s  
**Boiling Point:** 158 deg C @ 760 mmHg  
**Freezing/Melting Point:** 21 deg C  
**Decomposition Temperature:** Not available.  
**Solubility:** Miscible.  
**Specific Gravity/Density:** 1.685 g/cm3  
**Molecular Formula:** H3O4P  
**Molecular Weight:** 98

### Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures. Evolves hydrogen gas on contact with metals.  
**Conditions to Avoid:** Metals, excess heat, exposure to moist air or water.  
**Incompatibilities with Other Materials:** Nitromethane, strong bases, sodium tetrahydroborate, strong oxidizing agents, metals.  
**Hazardous Decomposition Products:** Oxides of phosphorus.  
**Hazardous Polymerization:** Will not occur.

### Section 11 - Toxicological Information

**RTECS#:**  
**CAS# 7664-38-2:** TB6300000  
**CAS# 7732-18-5:** ZC0110000  
**LD50/LC50:**  
**CAS# 7664-38-2:**  
Draize test, rabbit, eye: 119 mg Severe;  
Draize test, rabbit, skin: 595 mg/24H Severe;  
Inhalation, mouse: LC50 = 25.5 mg/m3;  
Inhalation, rat: LC50 = >850 mg/m3/1H;  
Inhalation, rat: LC50 = 25.5 mg/m3;  
Oral, mouse: LD50 = 1.25 gm/kg;  
Oral, rat: LD50 = 1530 mg/kg;  
Oral, rat: LD50 = 1.25 gm/kg;  
Skin, rabbit: LD50 = 2740 mg/kg;  
**CAS# 7732-18-5:**  
Oral, rat: LD50 = >90 mL/kg;
**Carcinogenicity:**
CAS# 7664-38-2: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 7732-18-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** No information found

**Teratogenicity:** No information found

**Reproductive Effects:** No information found

**Mutagenicity:** No information found

**Neurotoxicity:** No information found

**Other Studies:**

### Section 12 - Ecological Information

**Ecotoxicity:** Fish: Mosquito Fish: LC50 = 138 mg/L; 96 Hr; Unspecified No data available.

**Environmental:** The acidity of phosphoric acid may be reduced readily by natural water hardness minerals, but the phosphate may persist indefinitely. During transport through the soil, phosphoric acid will dissolve some of the soil material, in particular, carbonate-based materials. The acid will be neutralized to some degree with adsorption of the proton and phosphate ions also possible. However, significant amounts of acid will remain for transport down toward the groundwater table.

**Physical:** No information available.

**Other:** Dangerous to aquatic life in high concentrations.

### Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

### Section 14 - Transport Information

<table>
<thead>
<tr>
<th></th>
<th>US DOT</th>
<th>Canada TDG</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shipping Name:</strong></td>
<td>PHOSPHORIC ACID SOLUTION</td>
<td>PHOSPHORIC ACID SOLUTION</td>
</tr>
<tr>
<td><strong>Hazard Class:</strong></td>
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<td>8</td>
</tr>
<tr>
<td><strong>UN Number:</strong></td>
<td>UN1805</td>
<td>UN1805</td>
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<tr>
<td><strong>Packing Group:</strong></td>
<td>III</td>
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</tr>
</tbody>
</table>

### Section 15 - Regulatory Information

**US FEDERAL

**TSCA**
- CAS# 7664-38-2 is listed on the TSCA inventory.
- CAS# 7732-18-5 is listed on the TSCA inventory.

**Health & Safety Reporting List**
- None of the chemicals are on the Health & Safety Reporting List.

**Chemical Test Rules**
- None of the chemicals in this product are under a Chemical Test Rule.

**Section 12b**
- None of the chemicals are listed under TSCA Section 12b.

**TSCA Significant New Use Rule**
None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs
CAS# 7664-38-2: 5000 lb final RQ; 2270 kg final RQ

SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.

SARA Codes
CAS# 7664-38-2: immediate.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.

Clean Water Act:
CAS# 7664-38-2 is listed as a Hazardous Substance under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.

STATE
CAS# 7664-38-2 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.
CAS# 7732-18-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California Prop 65
California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations
European Labeling in Accordance with EC Directives

Hazard Symbols:
C

Risk Phrases:
R 34 Causes burns.

Safety Phrases:
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)
CAS# 7664-38-2: 1
CAS# 7732-18-5: No information available.

Canada - DSL/NDSL
CAS# 7664-38-2 is listed on Canada's DSL List.
CAS# 7732-18-5 is listed on Canada's DSL List.

Canada - WHMIS
This product has a WHMIS classification of E.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List
CAS# 7664-38-2 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 7/06/1999
Revision #9 Date: 5/21/2007

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental,
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