# Material Safety Data Sheet

**PHOSPHORIC ACID**

<table>
<thead>
<tr>
<th>Table of Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Chemical Product</td>
<td>2</td>
</tr>
<tr>
<td>2. Composition and Information on Ingredients</td>
<td>2</td>
</tr>
<tr>
<td>3. Hazards Identification</td>
<td>3</td>
</tr>
<tr>
<td>4. First Aid Measures</td>
<td>4</td>
</tr>
<tr>
<td>5. Fire and Explosion Data</td>
<td>5</td>
</tr>
<tr>
<td>6. Accidental Release Measures</td>
<td>6</td>
</tr>
<tr>
<td>7. Handling and Storage</td>
<td>6</td>
</tr>
<tr>
<td>8. Exposure Controls/ Personal Protection</td>
<td>6</td>
</tr>
<tr>
<td>9. Physical and Chemical Properties</td>
<td>7</td>
</tr>
<tr>
<td>10. Stability and Reactivity Data</td>
<td>7</td>
</tr>
<tr>
<td>11. Toxicological Information</td>
<td>8</td>
</tr>
<tr>
<td>12. Ecological Information</td>
<td>8</td>
</tr>
<tr>
<td>13. Disposal Considerations</td>
<td>8</td>
</tr>
<tr>
<td>14. References</td>
<td>9</td>
</tr>
<tr>
<td>15. Appendices</td>
<td>9</td>
</tr>
<tr>
<td>16. Revision History</td>
<td>9</td>
</tr>
</tbody>
</table>

---

**Written by:** Miguel Honoré  
**Signature/Date:**  

**Reviewed by:** Nicoleanne Scicluna  
**Signature/Date:**  

**Approved by:** Julian Mazzuopadu  
**Signature/Date:**
1. Chemical Product

**Product Name:** Phosphoric acid

**Chemical name:** Phosphoric acid

**Synonyms:** Orthophosphoric acid

**Chemical Formula:** \( \text{H}_3\text{PO}_4 \)

2. Composition and Information on Ingredients

**Composition:**
- Phosphoric Acid 85-88% w/w
- Water 12-15% w/w

**Toxicological Data on Ingredients:** Phosphoric Acid: Oral (LD50): Acute: 1530mg/kg [Rat]. Dermal (LD50): Acute: 2740 mg/kg [Rabbit]. Dust (LC50): Acute: &gt; 850mg/m1 hours [Rat].
### 3. Hazards Identification

**Potential Acute Health Effects:** Very hazardous in case of skin contact, eye contact and ingestion, acting as an irritant and corrosive agent. Characteristics of inflamed skin include itching, scaling, reddening and occasionally blistering. Skin contact may even produce burns. Characteristics of inflamed eyes include redness, itching and watering eyes. Hazardous in case of inhalation acting as a lung sensitizer. Mist of substance may result in damage to mucous membranes of eyes, mouth and respiratory linings. Inhalation of spray mist may result in irritation of respiratory tract, characterized by coughing, choking or shortness of breath.

**Potential Chronic Health Effects:** Severe over-exposure may result in death.

- **CARCINOGENIC EFFECTS:** N/A
- **MUTAGENIC EFFECTS:** N/A
- **TERATOGENIC EFFECTS:** N/A
- **DEVELOPMENTAL TOXICITY:** Phosphoric acid may be toxic to blood, liver, skin, eyes, bone marrow. Repeated or prolonged exposure to the substance can result in target organ damage. Repeated or prolonged exposure to spray mist may result in respiratory tract irritation leading to common attacks of bronchial infections.
### 4. First Aid Measures

**General measures:**

**Skin contact:** Immediately flush skin with plenty of cold water for 15 minutes. Cover the irritated skin with an emollient. Remove any contaminated clothing and footwear. Wash clothing and clean shoes before reuse. Consult a physician immediately.

**Serious skin contact:** Wash with water and a disinfectant soap. Cover the contaminated skin with an anti-bacterial cream. Consult a physician immediately.

**Eye contact:** Check for and remove any contact lenses. Immediately flush eyes with plenty of cold water for at least 15 minutes, lifting lower and upper eyelids occasionally. Consult a physician immediately.

**Ingestion:** Do not induce emesis unless told to do so by a physician. Do not give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie belt or waistband. Consult a physician immediately especially if large amounts have been swallowed.

**Serious indigestion:** N/A

**Inhalation:** Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Consult a physician immediately.

**Serious inhalation:** Evacuate person to an outdoor area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, give oxygen. If person is not breathing, perform mouth-to-mouth resuscitation although this might pose a hazard to the person providing the mouth-to-mouth resuscitation due to toxicity of substance.
### 5. Fire and Explosion Data

**Flammability of the Product:** Non-flammable.

**Auto-Ignition Temperature:** Not applicable.

**Flash points:** Not applicable.

**Flammable limits:** Not applicable.

**Products of Combustion:** Not applicable.

**Fire Hazards in Presence of Various Substances:** Metals

**Explosion Hazards in Presence of Various Substances:** Non-explosive in presence of open flames and sparks, of shocks.

**Fire fighting media and Instructions:** Not applicable.

**Special Remarks on Fire Hazards:** Reacts with metals to liberate flammable H₂ gas. Formation of flammable gases with aldehydes, cyanides, mercaptins and sulfides.

**Special Remarks on Explosion Hazards:** Mixtures with nitromethane are explosive.
6. **Accidental Release Measures**

**NB:** Wear appropriate protective equipment/clothing including gloves before removing any spills.

**Small spill:** Dilute with water and mop up, or use an adsorbent dry material. Place in a waste disposal container. Use diluted sodium carbonate solution to neutralize the contaminated area.

**Large spill:** absorb with dry earth, sand or other non-combustible material. Use water spray to divert vapour drift and reduce vapours. Call for assistance on disposal. Use diluted sodium carbonate solution to neutralize the contaminated area. Prevent entry into sewers, basements or confined areas. Check that the substance is not present in concentrations above its Threshold Limit Value (TLV).

7. **Handling and Storage**

**Precautions:** Avoid contact with skin and eyes. Avoid inhalation of vapours and mist.

**Storage:** Keep container tightly closed in a cool, well-ventilated area.

8. **Exposure Controls/Personal Protection**

**Airborne Exposure Limits:** Phosphoric Acid TWA: 1 STEL: 3 (mg/m³) from ACGIH (TLV) [United States] TWA: 1 STEL: 3 (mg/m³) from OSHA (PEL) [United States] TWA: 1 STEL: 3 (mg/m³) from NIOSH TWA: 1 STEL: 3 (mg/m³) [Mexico] Consult local authorities for acceptable exposure limits.

**Engineering Controls:** Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapours below their respective threshold limit value. Ensure that eyewash stations and safety showers are available nearby.

**Personal Protection:** Face shield, full suit, vapour respirator, boots and gloves.
9. Physical and Chemical Properties

- **Physical state and appearance**: Colourless viscous liquid.
- **Odour**: Odourless
- **Taste**: Acidic
- **Molecular Weight**: 9800 g/mol
- **pH (1% solution/water)**: Acidic
- **Boiling Point**: 158 °C (316.4 °F)
- **Melting Point**: 21°C (69.8 °F)
- **Critical Temperature**: N/A
- **Specific Gravity (Water = 1)**: 1.685 @ 25 °C
- **Vapour Pressure (mmHg)**: 0.3kPa (@20 °C)
- **Vapour Density**: 3.4 (Air = 1)
- **Volatile**: N/A
- **Odour Threshold**: N/A
- **Water/Oil Distribution Coefficient**: N/A
- **Ionicity (in Water)**: N/A
- **Dispersion Properties**: See solubility in water.
- **Solubility**: Easily soluble in hot water, soluble in cold water.

10. Stability and Reactivity Data

- **Stability**: Stable
- **Corrosivity**: Extremely corrosive in presence of copper, stainless steel (304) and stainless steel (316). Highly corrosive in the presence of aluminium. Non-corrosive in the presence of glass.
- **Instability temperature**: N/A
- **Conditions of Instability**: Incompatible substances.
- **Incompatibles**: Reactive with oxidizing agents, combustible materials, metals and alkalis.
- **Polymerization**: Will not occur.
11. Toxicological Information

**Toxicity to animals:** Acute oral toxicity (LD50): 1530mg/kg [Rat]. Acute dermal toxicity (LD50): 2740mg/kg [Rabbit].

**Effects on humans:**

**Acute potential health effects:** Corrosive to the eyes and skin. Absorption through the skin may also affect behaviour resulting in somnolence or excitement. Liquid or vapour can cause severe eye burns leading to permanent corneal damage or chemical conjunctivitis. Ingestion may cause severe pain, nausea, diarrhoea, emesis, haematemesis, GI haemorrhaging, shock, corrosion and permanent tissue destruction of oesophagus and digestive tract. May also affect the urinary system as well as the liver and blood.

**Chronic potential health effects:** May cause damage to various organs including: blood, liver, skin, eyes and bone marrow.

*MUTAGENIC EFFECTS: N/A
TERATOGENIC EFFECTS: N/A
DEVELOPMENTAL TOXICITY: N/A
Other information: N/A

12. Ecological Information

**Ecotoxicity:** N/A

13. Disposal Considerations

**Waste Disposal:** Must be in accordance with local environmental control regulations. Avoid unauthorised disposal.
MATERIAL SAFETY DATA SHEET

PHOSPHORIC ACID

Valid for: 2 years from approval

---

### 14. References


---

### 15. Appendices

N/A

---

### 16. Revision History

<table>
<thead>
<tr>
<th>Version Number</th>
<th>Amendments/ Reasons for change</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Initial Release</td>
</tr>
</tbody>
</table>

---