Phosphorous Acid MSDS

1. Product Name and Identification

Product Name: Phosphorous Acid
Synonyms: Orthophosphorous acid, Phosphonic acid
CAS Number: 10294-56-1
Chemical Formula: H3PO3
Manufacturer/Distributor Contact Information:
(Address and emergency phone number should be filled out by the supplier)

2. Composition/Ingredients

Substance: Pure substance
Chemical Name: Phosphorous Acid
Concentration: 100%
CAS Number: 10294-56-1
No additional hazardous components detected.

3. Hazards Identification

Classification

- **GHS Classification**:
  - Acute toxicity, Oral (Category 4)
  - Skin corrosion/irritation (Category 2)
  - Eye damage/irritation (Category 2)
- **Health Hazards**: Harmful if swallowed, may cause irritation to skin and eyes upon contact.

Label Elements

- **Signal Word**: Warning
- **Hazard Statements**:
  - H302: Harmful if swallowed
  - H315: Causes skin irritation
  - H319: Causes serious eye irritation
- **Precautionary Statements**:
  - P280: Wear protective gloves, clothing, and eye/face protection.
  - P264: Wash hands thoroughly after handling.
  - P301+P330+P312: If swallowed, rinse mouth and seek medical attention if symptoms appear.

4. First Aid Measures

General Advice
If symptoms arise, seek medical assistance immediately. Provide this document to the healthcare professional if necessary.

- **Eyes**: Rinse cautiously with water for at least 10–15 minutes. Remove contact lenses if present and continue rinsing. Seek medical attention if irritation persists.
- **Skin**: Wash thoroughly with soap and water. Remove contaminated clothing and rinse affected area. Seek medical attention if skin irritation develops or persists.
- **Inhalation**: Move the individual to fresh air. If they experience breathing difficulty, consult a medical professional immediately.
- **Ingestion**: Rinse mouth with water and avoid inducing vomiting. Seek immediate medical help.

5. Handling and Storage

Handling

- Handle in a well-ventilated workspace to minimize inhalation risks.
- Avoid skin and eye contact and use appropriate protective equipment.
- Prevent contact with incompatible substances such as strong oxidizing agents.

Storage

- Store in a cool, dry, and well-ventilated area.
- Keep the container tightly sealed and away from moisture or heat sources.
- Avoid storage near bases, oxidizers, or heat-sensitive materials.

6. Exposure Controls/Personal Protection

Engineering Controls

- Maintain adequate ventilation systems to meet exposure limits.

Personal Protective Equipment (PPE)

- **Eye Protection**: Wear protective safety goggles or a face shield.
- **Skin Protection**: Use chemical-resistant gloves and coveralls.
- **Respiratory Protection**: If ventilation is inadequate, use an approved respirator rated for acidic fumes and particles.

Other Precautions
Ensure clean washing facilities are available to prevent contamination.

7. Physical and Chemical Properties

- **Appearance**: White crystalline solid
- **Odor**: Pungent or slightly sour
- **Molecular Weight**: 82 g/mol
- **Melting Point**: 73–75°C
- **Boiling Point**: Decomposes upon heating
- **Solubility in Water**: Highly soluble
- **Density**: 1.65 g/cm³
- **pH** (10% solution): 1.5–2.5
- **Flash Point**: Not applicable
- **Flammability**: Not classified as flammable

8. Stability and Reactivity

Chemical Stability

- Stable under normal storage and handling conditions.

Reactivity

- Reacts with strong oxidizing agents.
- Decomposes upon heating to release phosphine (toxic) and phosphoric acid vapors.

Conditions to Avoid

- Exposure to high temperatures, moisture, and incompatible substances.

Hazardous Decomposition Products

- May emit toxic fumes such as phosphorus oxides, phosphine, or other hazardous vapors when heated.

9. Toxicological Information

Acute Toxicity

- **Oral (LD50/Rat)**: 1700 mg/kg
- Harmful if swallowed.

Skin and Eye Irritation

- Causes irritation upon direct contact with the skin or eyes.

Respiratory Effects

- Prolonged inhalation of fumes or dust may irritate the respiratory system.

Carcinogenicity

- Not classified as carcinogenic according to IARC, NTP, or OSHA standards.

Chronic Effects

- Prolonged exposure may cause more severe irritation to the mucous membranes and skin.

10. Disposal Considerations

- Dispose of in accordance with all local, regional, and national environmental regulations.
- Avoid discharging into drains or waterways to prevent contamination.
- Contaminated packaging should be treated as hazardous waste. Rinse thoroughly before discarding or repurposing.