

HPAA (2-Hydroxyphosphonoacetic Acid) - MSDS

1. Product Name and Identification

Product Name: [2-Hydroxyphosphonoacetic Acid \(HPAA\)](#)

Chemical Formula: C₂H₅O₆P

Synonyms: Hydroxyphosphonoacetic Acid, HPAA, 2-Phosphonoglycolic Acid

CAS Number: 23783-26-8

Manufacturer/Supplier: [Insert Manufacturer Name]

Emergency Contact Information: [Insert Emergency Contact Details]

2. Composition/Ingredients

Substance: 2-Hydroxyphosphonoacetic Acid

Chemical Name: Hydroxyphosphonoacetic Acid

CAS Number: 23783-26-8

Percent by Weight: ≥ 50% in aqueous solution

3. Hazards Identification

GHS Classification:

- Skin corrosion/irritation (Category 2)
- Serious eye damage/eye irritation (Category 2A)
- Acute toxicity - Oral (Category 4)

Signal Word: Warning

Hazard Statements:

- H302: Harmful if swallowed.
- H315: Causes skin irritation.
- H319: Causes serious eye irritation.

Precautionary Statements:

- P264: Wash hands thoroughly after handling.
- P280: Wear protective gloves, clothing, and eye protection.
- P301+P312: If swallowed, call a doctor or poison control center if you feel unwell.
- P305+P351+P338: If in eyes, rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do.

Potential Health Effects:

- **Eye Contact:** Causes redness, irritation, or watering of eyes.
- **Skin Contact:** May result in irritation or redness upon prolonged exposure.
- **Inhalation:** Mist or vapor may irritate the respiratory system.
- **Ingestion:** May cause nausea, vomiting, or abdominal discomfort.

4. First Aid Measures

General Advice: Seek immediate medical attention for significant exposure or if symptoms persist.

- **Eye Contact:** Rinse eyes thoroughly with water for at least 15 minutes. Remove contact lenses if applicable. Seek medical attention if irritation persists.
- **Skin Contact:** Wash affected skin with soap and water. Remove contaminated clothing. If irritation continues, consult a physician.
- **Inhalation:** Move the exposed individual to fresh air. Seek professional medical advice if symptoms like coughing or shortness of breath persist.
- **Ingestion:** Rinse mouth with water. Do not induce vomiting. Immediately contact a poison control center or doctor.

5. Handling and Storage

Handling:

- Minimize direct contact with skin, eyes, and clothing.
- Avoid inhaling mist or vapors.
- Use in well-ventilated areas or under fume hood conditions.

Storage:

- Store in tightly closed containers in a cool, dry place.
- Protect from heat, moisture, and sunlight.
- Keep away from strong oxidizing agents or bases.

6. Exposure Controls/Personal Protection

Exposure Limits: No established occupational exposure limits.

Engineering Controls:

- Use adequate ventilation to minimize vapor or mist in air. Local exhaust is recommended.

Personal Protective Equipment (PPE):

- **Eye Protection:** Safety goggles or face shield.
- **Skin Protection:** Chemical-resistant gloves made from nitrile or PVC.
- **Respiratory Protection:** Use an approved respirator if airborne concentrations exceed exposure limits.
- **Clothing:** Wear full protective clothing, including a long-sleeved lab coat.

7. Physical and Chemical Properties

- **Appearance:** Clear to pale yellow liquid (aqueous solution)
- **Odor:** Slight characteristic odor
- **Boiling Point:** Approximately 120°C (248°F) for aqueous solution
- **Melting Point:** Not applicable in liquid state
- **Flash Point:** Not flammable
- **Density:** Approximately 1.3 g/cm³ (aqueous solution)
- **Vapor Pressure:** Low at room temperature
- **Solubility:** Fully soluble in water; soluble in organic solvents such as methanol
- **pH:** 2–3 (in solution)

8. Stability and Reactivity

Chemical Stability: Stable under normal handling and storage conditions.

Conditions to Avoid:

- Avoid excessive heat or prolonged exposure to air and moisture.

Materials to Avoid:

- Strong oxidizing agents, strong bases, and reactive metals.

Hazardous Decomposition Products:

- Thermal decomposition can release toxic fumes, including phosphorous oxides and carbon monoxide.

9. Toxicological Information

Acute Toxicity:

- **Oral LD50 (Rat):** 940 mg/kg
- **Dermal LD50 (Rabbit):** > 2,000 mg/kg

Irritation Properties:

- Causes skin and eye irritation upon contact.

Symptoms of Exposure:

- Exposure may cause temporary respiratory and skin discomfort.

Chronic Effects:

- No carcinogenic, mutagenic, or reproductive toxicity effects observed in its common use.

10. Disposal Considerations

Waste Disposal Methods:

Dispose of contents/container in accordance with local regulations. Prevent release into drains or environment. Neutralize before disposal if allowed.

Container Handling:

Do not reuse empty containers. Ensure containers are rinsed thoroughly before disposal. Handle all residues as hazardous waste.