

# Phosphorus Pentoxide MSDS

## Product Name and Identification

**Product Name:** [Phosphorus Pentoxide](#)

**Chemical Formula:** P<sub>2</sub>O<sub>5</sub>

**CAS Number:** 1314-56-3

**Intended Use:** Used as a dehydrating agent, in chemical synthesis, and in the production of phosphoric acid and related compounds.

## Composition/Ingredients

### Chemical Composition:

- **Substance Name:** Phosphorus Pentoxide
- **Purity:** ≥ 99%
- **Hazardous Components:** Phosphorus Pentoxide is classified as hazardous based on its highly reactive properties and potential to cause severe irritation.

## Hazards Identification

### Emergency Overview:

- **Physical Hazards:**
  - Reacts violently with water, releasing heat and producing phosphoric acid.
  - May lead to fire or explosion in contact with combustible materials.
- **Health Hazards:**
  - Causes severe burns to skin and eyes.
  - Extremely irritating to the respiratory system.
  - Harmful if inhaled or swallowed.
- **Environmental Hazards:**
  - Toxic to aquatic systems if released in large amounts.

### Precautionary Statements:

- Keep dry and away from water.
- Do not inhale dust. Wear protective clothing and safety gear.
- Avoid release into the environment.

## First Aid Measures

### Eye Contact:

- Rinse eyes immediately with plenty of water for at least 15 minutes. Remove contact lenses, if present and safe to do so. Seek immediate medical attention.

**Skin Contact:**

- Rinse skin with plenty of water while removing contaminated clothing and shoes. Seek immediate medical help if irritation persists or burns develop.

**Inhalation:**

- Move the affected individual to fresh air immediately. If breathing is difficult, provide oxygen if trained to do so. Seek medical attention for any respiratory discomfort or symptoms.

**Ingestion:**

- Rinse mouth with water. Do not induce vomiting. Seek immediate medical attention.

## Handling and Storage

**Handling:**

- Handle only in a well-ventilated area. Avoid generating dust.
- Do not allow the material to come into contact with water or moisture.
- Wear appropriate protective equipment to avoid exposure.

**Storage:**

- Store in a cool, dry, and well-ventilated place.
- Keep container tightly sealed and away from moisture, water, and combustible materials.

## Exposure Controls/Personal Protection

**Exposure Limits:**

- OSHA PEL (Permissible Exposure Limit): 1 mg/m<sup>3</sup> (as phosphorus pentoxide).
- ACGIH TLV (Threshold Limit Value): 1 mg/m<sup>3</sup> (as phosphorus pentoxide).

**Engineering Controls:**

- Provide local exhaust ventilation or process enclosures to prevent dust formation.

**Personal Protective Equipment (PPE):**

- **Eye Protection:** Chemical safety goggles or a face shield.

- **Skin Protection:** Wear chemical-resistant gloves and protective clothing.
- **Respiratory Protection:** Use an approved particulate respirator when handling material in dusty conditions.

## Physical and Chemical Properties

- **Appearance:** White, crystalline powder
- **Odor:** Odorless
- **Melting Point:** Sublimes at approximately 360°C
- **Boiling Point:** Not applicable (decomposes to phosphoric acid in the presence of moisture)
- **Flash Point:** Non-flammable, but reacts with water to release heat.
- **Solubility:** Reacts violently with water to produce phosphoric acid.
- **Vapor Pressure:** Negligible at room temperature

## Stability and Reactivity

### Chemical Stability:

- Stable under recommended storage conditions when kept dry.

### Reactivity:

- Reacts violently with water or moisture to form phosphoric acid.
- Reacts with combustible materials, releasing heat and potentially causing fire.

### Conditions to Avoid:

- Contact with water, moisture, and incompatible materials such as organic substances and strong bases.

### Hazardous Decomposition Products:

- Produces phosphoric acid when in contact with water or humid environments.

## Toxicological Information

- **Acute Toxicity:**
  - Causes severe irritation or burns upon contact with skin, eyes, or mucous membranes.
  - Can cause respiratory irritation if inhaled.
- **Chronic Effects:**
  - Prolonged exposure to low levels may cause chronic respiratory symptoms or burns.
- **Carcinogenic Status:**

- Not classified as carcinogenic.

## **Disposal Considerations**

- Dispose of material in accordance with local, regional, and national regulations.
- Avoid releasing the substance into water bodies or the environment.
- Contaminated packaging should also be disposed of safely to prevent reactions with water or moisture.

**Note:** This document is intended as a safety guideline. The information provided is based on current understanding and is subject to change with new scientific data. Always consult applicable regulations and standards for safe handling and use.