

# Monopotassium Phosphate MSDS

## 1. Product Name and Identification

**Product Name:** [Monopotassium Phosphate \(MKP\)](#)

**Chemical Name:** Potassium dihydrogen phosphate

**Chemical Formula:**  $\text{KH}_2\text{PO}_4$

**CAS Number:** 7778-77-0

**EC Number:** 231-913-4

**Molecular Weight:** 136.09 g/mol

**Product Use:** Fertilizer, food additive, buffering agent, laboratory reagent, fire suppressant

**Supplier Information:** [Company Name, Address, Phone Number, Emergency Contact Information]

## 2. Composition/Ingredients

**Component:** Monopotassium Phosphate

**Concentration:**  $\geq 99\%$

**CAS Number:** 7778-77-0

**EINECS Number:** 231-913-4

**Impurities:** May contain trace amounts of dipotassium phosphate, arsenic compounds, and heavy metals

**Water Content:**  $\leq 0.2\%$

**Chloride Content:**  $\leq 0.01\%$

## 3. Hazards Identification

### GHS Classification:

- Not classified as hazardous under normal handling conditions
- Eye Irritation (Category 2B) - potential mechanical irritation from dust
- GRAS (Generally Recognized as Safe) for food use

**Signal Word:** None required

### Hazard Statements:

- Dust may cause mechanical irritation to eyes and respiratory system
- Generally considered safe for intended uses

### Precautionary Statements:

- Avoid breathing dust particles
- Wash hands after handling
- Use eye protection when dust generation is possible
- Maintain good ventilation

## 4. First Aid Measures

### Inhalation:

- Remove person to fresh air immediately
- Allow person to rest in comfortable position
- If persistent coughing or throat irritation occurs, seek medical advice
- Provide oxygen if breathing difficulties develop

### Skin Contact:

- Wash affected area with plenty of water and mild soap
- Remove dust-contaminated clothing
- No specific treatment required for normal contact
- If irritation develops, rinse thoroughly and seek medical advice

### Eye Contact:

- Flush eyes gently with clean water for 15-20 minutes
- Remove contact lenses if present and easy to remove
- Keep eyes open during flushing to ensure thorough irrigation
- Seek medical attention if irritation continues

### Ingestion:

- Rinse mouth with water
- Give water or milk to drink if person is conscious
- No specific treatment needed for small amounts
- Contact poison control center if large quantities ingested

## 5. Handling and Storage

### Handling Precautions:

- Use standard good industrial hygiene practices
- Minimize dust formation during transfer and handling
- Avoid prolonged skin contact with dusty material
- Use clean, dry equipment to prevent contamination
- Implement appropriate dust control measures

### Storage Requirements:

- Store in cool, dry, well-ventilated location
- Keep containers tightly sealed to prevent moisture absorption
- Maintain storage temperature below 40°C

- Protect from direct sunlight and heat sources
- Separate from incompatible materials
- Use moisture-resistant storage containers

## 6. Exposure Controls/Personal Protection

### Exposure Limits:

- OSHA PEL: 15 mg/m<sup>3</sup> (total dust), 5 mg/m<sup>3</sup> (respirable fraction)
- ACGIH TLV: 10 mg/m<sup>3</sup> (inhalable particles)
- No specific occupational exposure limit established for this substance

### Engineering Controls:

- Provide adequate general ventilation
- Use local exhaust ventilation for dusty operations
- Install appropriate dust collection systems
- Maintain clean work environment through regular housekeeping

### Personal Protective Equipment:

- **Respiratory:** N95 dust mask for dusty conditions
- **Eye Protection:** Safety glasses with side shields when dust is present
- **Skin Protection:** Work gloves for handling comfort (chemical resistance not required)
- **Body Protection:** Standard work clothing appropriate

## 7. Physical and Chemical Properties

**Appearance:** White crystalline powder or granules

**Odor:** Odorless

**pH:** 4.2-4.7 (1% aqueous solution)

**Melting Point:** 252.6°C

**Decomposition Temperature:** >400°C

**Density:** 2.338 g/cm<sup>3</sup>

**Bulk Density:** 1.0-1.3 g/cm<sup>3</sup>

**Solubility:** Freely soluble in water (227 g/L at 20°C)

**Solubility:** Slightly soluble in alcohol

**Hygroscopicity:** Non-hygroscopic under normal conditions

**Crystal Form:** Tetragonal crystals

## 8. Stability and Reactivity

**Chemical Stability:** Stable under recommended storage and handling conditions

**Conditions to Avoid:**

- Excessive heat above decomposition temperature
- Strong alkaline conditions
- Prolonged exposure to moisture

**Incompatible Materials:**

- Strong bases and alkalis
- Calcium compounds (forms precipitates)
- Heavy metal ions
- Strong oxidizers at elevated temperatures

**Hazardous Decomposition Products:**

- Phosphorus pentoxide (at high temperatures)
- Potassium oxide
- Water vapor
- Phosphine gas (under reducing conditions at high temperature)

**Hazardous Reactions:** May form insoluble precipitates with certain metal salts; no dangerous reactions under normal conditions

## 9. Toxicological Information

**Acute Toxicity:**

- Oral LD50 (rat): >3,050 mg/kg (low toxicity)
- Dermal toxicity: Expected to be non-toxic based on chemical properties
- Inhalation: Nuisance dust effects only

**Health Effects:**

- **Acute:** Minimal health effects; possible mild irritation from dust
- **Chronic:** No known adverse health effects from normal occupational exposure
- **Carcinogenicity:** Not listed by IARC, NTP, or OSHA
- **Reproductive:** No known reproductive or developmental effects

**Target Organs:** None specifically identified

**Additional Information:**

- Considered nutritionally beneficial as source of potassium and phosphorus
- Used in food applications without adverse effects
- Essential nutrients for plant and human metabolism

## 10. Disposal Considerations

**Waste Disposal Methods:**

- Dispose according to local, state, and federal environmental regulations
- Generally acceptable for disposal as non-hazardous waste
- Can be used as fertilizer if appropriate for intended application
- Dissolve in water for disposal through wastewater treatment where permitted

**Container Disposal:**

- Empty containers may be recycled where appropriate facilities exist
- Rinse containers thoroughly before disposal or recycling
- No special precautions required for container disposal
- Follow standard waste management practices

**Environmental Considerations:**

- Environmentally beneficial when used as intended (fertilizer applications)
- Provides essential plant nutrients (potassium and phosphorus)
- Not expected to persist or bioaccumulate in environment
- May contribute to eutrophication if released in large quantities to water bodies

**Special Notes:**

- Product is biodegradable and poses minimal environmental risk
- Consider beneficial reuse applications before disposal
- Large spills should be collected to prevent nutrient loading of waterways

**Document Prepared:** September 4, 2025

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**Emergency Response:** [Insert 24-hour emergency contact information]

**Regulatory Compliance:** This safety data sheet complies with OSHA HCS 2012 and GHS requirements

**Legal Statement:** The information in this safety data sheet is based on current scientific knowledge and is believed to be accurate. However, no warranty is made regarding the accuracy or completeness of this information. Users are responsible for determining the appropriateness of this material for their specific use and for ensuring compliance with applicable laws and regulations. This document does not replace the need for appropriate safety training and risk assessment for specific workplace conditions.