

# Trisodium Phosphate MSDS

## 1. Product Name and Identification

**Product Name:** [Trisodium Phosphate](#)

**Synonyms:** Sodium phosphate tribasic, TSP

**Chemical Formula:** Na<sub>3</sub>PO<sub>4</sub>

**Molecular Weight:** 163.94 g/mol

**CAS Number:** 7601-54-9

**Intended Use:** Cleaning agent, water softener, stain remover, emulsifier

## 2. Composition/Ingredients

Substance	CAS Number	Proportion (%)
Trisodium Phosphate	7601-54-9	≥98%
Impurities (trace levels)	---	≤2%

## 3. Hazards Identification

### Classification:

- Irritant to skin, eyes, and respiratory system.
- Non-flammable but can decompose at high temperatures to release irritating fumes.

### Potential Hazards:

- **Health Hazards:** May cause skin and eye irritation. Dust inhalation can lead to respiratory discomfort.
- **Environmental Hazards:** Can cause damage to aquatic environments in high concentrations.

### GHS Label Elements:

- **Pictogram:** 
- **Signal Word:** Warning
- **Hazard Statements:**
  - H315 - Causes skin irritation.
  - H319 - Causes serious eye irritation.
  - H335 - May cause respiratory irritation.
- **Precautionary Statements:**
  - Avoid direct contact with skin and eyes.
  - Do not inhale dust or fumes.
  - Wear protective equipment during handling.

## 4. First Aid Measures

### **Skin Contact:**

Wash skin thoroughly with soap and water. Remove contaminated clothing and rinse exposed skin. Consult a doctor if irritation persists.

### **Eye Contact:**

Rinse eyes gently with water for at least 15 minutes. Keep eyelids open while rinsing. Seek medical attention if irritation persists.

### **Inhalation:**

Move the person to fresh air. If symptoms such as coughing or difficulty breathing occur, seek immediate medical attention.

### **Ingestion:**

Rinse mouth with water. Do not induce vomiting unless advised by a medical professional. Seek immediate medical attention.

## 5. Handling and Storage

### **Handling:**

- Avoid inhaling dust or fumes. Use in a well-ventilated area.
- Wear appropriate personal protective equipment to prevent direct contact with skin and eyes.
- Wash hands thoroughly after handling.

### **Storage:**

- Store in a tightly closed container in a dry, cool, and well-ventilated area.
- Keep away from moisture, acids, and incompatible materials like aluminum.

## 6. Exposure Controls/Personal Protection

### **Engineering Controls:**

Use appropriate local exhaust systems or general ventilation to minimize dust exposure.

### **Personal Protection Equipment (PPE):**

- **Eye Protection:** Safety goggles or protective glasses.
- **Skin Protection:** Wear chemical-resistant gloves and long-sleeved protective clothing.
- **Respiratory Protection:** Use a dust mask or respirator in areas with inadequate ventilation or significant dust levels.

## 7. Physical and Chemical Properties

Property	Value
Form	Granular or crystalline powder
Color	White
Odor	Odorless
pH (1% solution)	~11.5
Melting Point	73°C (unstable, releases water of hydration)
Boiling Point	Not applicable
Solubility (Water)	Highly soluble
Specific Gravity	~2.54
Flash Point	Non-flammable

## 8. Stability and Reactivity

**Stability:** Stable under recommended storage conditions.

### Conditions to Avoid:

- Exposure to strong acids, moisture, and high temperatures.

### Materials to Avoid:

- Strong acids, aluminum, and moisture will react, releasing heat and irritating fumes.

### Decomposition Products:

Releases phosphoric acids and sodium oxides when decomposed at high temperatures.

## 9. Toxicological Information

**Routes of Exposure:** Skin contact, eye contact, inhalation, ingestion.

### Toxic Effects:

- Acute skin or eye contact can cause irritation.
- Dust inhalation may lead to coughing or respiratory discomfort.
- Swallowing large amounts may irritate the gastrointestinal tract, causing nausea or abdominal pain.

### Chronic Effects:

- Prolonged exposure to dust may cause respiratory irritation over time.

**LD50 Data:**

- Oral (rat): ~7,400 mg/kg

## **10. Disposal Considerations**

Dispose of Trisodium Phosphate in accordance with all local, regional, and national regulations. Avoid discharging into natural waterways or sewer systems.

**Disposal Recommendations:**

- Small quantities can be diluted with water and neutralized.
  - Larger quantities must be handled by an authorized waste disposal facility to minimize environmental harm.
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