

Sodium Trimetaphosphate MSDS

1. Product Name and Identification

Product Name: [Sodium Trimetaphosphate \(STMP\)](#)

Chemical Name: Sodium Trimetaphosphate

Chemical Formula: Na₃P₃O₉

CAS Number: 7785-84-4

EC Number: 232-088-3

Molecular Weight: 305.89 g/mol

Product Use: Water treatment, food additive, detergent builder, metal treatment

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

2. Composition/Ingredients

Component: Sodium Trimetaphosphate

Concentration: ≥ 95%

CAS Number: 7785-84-4

EINECS Number: 232-088-3

Impurities: May contain small amounts of sodium orthophosphates and pyrophosphates

Water Content: ≤ 0.5%

3. Hazards Identification

GHS Classification:

- Eye Irritation (Category 2A)
- Skin Irritation (Category 2)
- Specific Target Organ Toxicity - Single Exposure (Category 3)

Signal Word: WARNING

Hazard Statements:

- H315: Causes skin irritation
- H319: Causes serious eye irritation
- H335: May cause respiratory irritation

Precautionary Statements:

- Wash hands thoroughly after handling
- Avoid breathing dust/fume/gas/mist/vapors/spray
- Use only outdoors or in well-ventilated area
- Wear protective gloves/protective clothing/eye protection/face protection

- If in eyes: Rinse cautiously with water for several minutes

4. First Aid Measures

Inhalation:

- Remove affected person to fresh air and keep comfortable for breathing
- If experiencing respiratory symptoms, call a poison center or physician
- Rest in position comfortable for breathing
- If unconscious, place in recovery position and seek medical advice

Skin Contact:

- Wash with plenty of water and soap
- Remove contaminated clothing and wash before reuse
- If skin irritation occurs, seek medical advice/attention
- Continue rinsing for 15-20 minutes if irritation persists

Eye Contact:

- Rinse cautiously with water for several minutes
- Remove contact lenses if present and easy to do so
- Continue rinsing for at least 15 minutes
- If eye irritation persists, get medical advice/attention

Ingestion:

- Rinse mouth thoroughly with water
- Do not induce vomiting unless directed by medical personnel
- Give small amounts of water to drink if person is conscious
- Seek medical attention if large quantities are swallowed

5. Handling and Storage

Handling Precautions:

- Avoid dust formation and inhalation
- Use appropriate personal protective equipment
- Ensure adequate ventilation in work areas
- Avoid contact with eyes and prolonged skin contact
- Wash hands thoroughly after handling
- Do not eat, drink, or smoke while handling

Storage Requirements:

- Store in original container in cool, dry place
- Keep container tightly closed when not in use
- Protect from moisture and humidity
- Store away from incompatible materials
- Maintain storage temperature between 5-40°C
- Keep away from heat sources and direct sunlight

6. Exposure Controls/Personal Protection

Exposure Limits:

- OSHA PEL: 5 mg/m³ (respirable fraction), 15 mg/m³ (total dust)
- ACGIH TLV: 1 mg/m³ (respirable fraction), 3 mg/m³ (inhalable fraction)
- NIOSH REL: 5 mg/m³ (respirable fraction), 15 mg/m³ (total dust)

Engineering Controls:

- Provide adequate general and local exhaust ventilation
- Use dust collection systems when handling powder
- Maintain equipment to prevent dust accumulation
- Install eyewash stations and safety showers

Personal Protective Equipment:

- **Respiratory:** Dust mask (N95) for dusty conditions; half-face respirator for prolonged exposure
- **Eye Protection:** Safety glasses with side shields or goggles
- **Skin Protection:** Nitrile or vinyl gloves, long-sleeved clothing
- **Body Protection:** Lab coat or protective clothing when handling large quantities

7. Physical and Chemical Properties

Appearance: White crystalline powder

Odor: Odorless

pH: 6.0-7.0 (5% aqueous solution)

Melting Point: 628°C

Boiling Point: Not applicable

Bulk Density: 0.9-1.2 g/cm³

Solubility: Readily soluble in water (approximately 200 g/L at 20°C)

Vapor Pressure: Not applicable

Particle Size: Typically 20-100 mesh

Hygroscopicity: Slightly hygroscopic

8. Stability and Reactivity

Chemical Stability: Stable under normal storage and handling conditions

Conditions to Avoid:

- High temperatures (>600°C)
- Strong acids (causes hydrolysis)
- High humidity for extended periods
- Mechanical impact on large quantities

Incompatible Materials:

- Strong acids
- Heavy metal salts
- Calcium and magnesium compounds in concentrated solutions
- Strong oxidizing agents

Hazardous Decomposition Products:

- Phosphorus oxides
- Sodium oxide
- Toxic phosphine gas (under extreme heating conditions)

Hazardous Reactions: Gradual hydrolysis in acidic conditions producing orthophosphates

9. Toxicological Information

Acute Toxicity:

- Oral LD50 (rat): >3,200 mg/kg (low toxicity)
- Dermal LD50 (rabbit): >2,000 mg/kg (low toxicity)
- Inhalation LC50: No data available, but expected to be low toxicity

Health Effects:

- **Eyes:** Mechanical irritation from dust particles
- **Skin:** Mild irritation with prolonged contact, especially when moist
- **Inhalation:** Upper respiratory tract irritation from dust
- **Ingestion:** Generally low toxicity, may cause mild gastrointestinal upset

Chronic Effects:

- No known chronic health effects from normal industrial use
- GRAS (Generally Recognized as Safe) status for food applications
- Not classified as carcinogenic, mutagenic, or toxic to reproduction

10. Disposal Considerations

Waste Disposal Methods:

- Dispose according to local, state, and federal environmental regulations
- Can typically be disposed as non-hazardous industrial waste
- Small quantities may be dissolved and discharged to wastewater treatment systems where permitted
- Consider recycling or reuse when possible

Container Disposal:

- Triple rinse empty containers
- Offer containers for recycling where facilities exist
- Dispose of containers in accordance with local waste management guidelines
- Do not reuse containers for food, feed, or drinking water

Special Considerations:

- Product is biodegradable and environmentally acceptable
- Will contribute phosphate content to receiving waters
- Check local regulations regarding phosphate discharge limits
- Large spills should be collected mechanically to prevent environmental release

Document Prepared: September 4, 2025

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Next Review Date: September 4, 2028

Emergency Contact: [24-hour emergency number]

Regulatory Compliance: This MSDS complies with OSHA HCS 2012 and GHS requirements

Disclaimer: The information provided is based on current knowledge and is intended for workplace safety guidance. Users should evaluate their specific applications and comply with applicable regulations. This information does not constitute a warranty of product performance or suitability.