

Material Safety Data Sheet (MSDS) – Sodium Persulfate

1. Chemical Product and Company Identification

- **Product Name:** Sodium Persulfate
 - **Synonyms:** Disodium peroxydisulfate, Sodium peroxodisulfate
 - **Chemical Formula:** Na₂S₂O₈
 - **CAS Number:** 7775-27-1
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2. Composition / Information on Ingredients

Component	CAS Number	% by Weight
Sodium Persulfate	7775-27-1	≥ 99%

3. Hazards Identification

- **GHS Classification:**
 - **Oxidizing Solid (Category 3)**
 - **Acute Toxicity – Oral (Category 4)**
 - **Skin Irritant (Category 2)**
 - **Eye Irritant (Category 2A)**
 - **Respiratory Sensitizer (Category 1)**
 - **Skin Sensitizer (Category 1)**
 - **Signal Word:** Danger
 - **Hazard Statements:**
 - H272: May intensify fire; oxidizer
 - H302: Harmful if swallowed
 - H315: Causes skin irritation
 - H319: Causes serious eye irritation
 - H334: May cause allergy or asthma symptoms or breathing difficulties
 - H335: May cause respiratory irritation
 - H317: May cause allergic skin reaction
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4. First Aid Measures

- **Inhalation:** Move to fresh air. Seek medical attention if breathing becomes difficult.
- **Skin Contact:** Wash thoroughly with soap and water. Remove contaminated clothing.
- **Eye Contact:** Rinse with plenty of water for at least 15 minutes. Seek medical attention.
- **Ingestion:** Rinse mouth. Do **not** induce vomiting. Seek immediate medical attention.

5. Fire-Fighting Measures

- **Flash Point:** Not flammable
 - **Extinguishing Media:** Use water spray, foam, or CO₂. Do **not** use dry chemical extinguishers on oxidizers.
 - **Special Hazards:** Decomposes on heating, releasing oxygen and toxic gases (SO_x).
 - **Firefighting PPE:** Full protective gear and self-contained breathing apparatus (SCBA) required.
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6. Accidental Release Measures

- **Personal Precautions:** Avoid dust formation. Wear protective clothing, goggles, and mask.
 - **Spill Cleanup:** Sweep up without creating dust. Keep away from organic materials, flammable substances, and reducing agents. Dispose according to local regulations.
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7. Handling and Storage

- **Handling:** Avoid contact with skin, eyes, and clothing. Prevent dust generation. Keep away from heat and incompatible materials.
 - **Storage:** Store in a cool, dry, well-ventilated place away from heat, moisture, and combustible materials. Keep container tightly closed.
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8. Exposure Controls / Personal Protection

- **Exposure Limits:**
 - ACGIH TLV: 0.1 mg/m³ (as persulfate, inhalable fraction)
 - **Engineering Controls:** Use local exhaust ventilation.
 - **Personal Protective Equipment (PPE):**
 - **Eyes:** Chemical safety goggles
 - **Skin:** Protective gloves and clothing
 - **Respiratory:** Dust mask or respirator (NIOSH-approved) in case of inadequate ventilation
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9. Physical and Chemical Properties

- **Appearance:** White crystalline powder
 - **Odor:** Odorless
 - **Melting Point:** Decomposes before melting (~180°C)
 - **Solubility in Water:** 55 g/100 mL at 25°C
 - **Density:** ~2.59 g/cm³
 - **pH (1% solution):** ~3.0 (acidic)
 - **Oxidizing Properties:** Strong oxidizer
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10. Stability and Reactivity

- **Stability:** Stable under recommended storage conditions
 - **Decomposition Temperature:** ~180°C
 - **Incompatible Materials:** Organic materials, reducing agents, acids, bases, combustibles, heavy metals
 - **Hazardous Decomposition Products:** Oxygen, sulfur oxides (SO₂, SO₃)
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11. Toxicological Information

- **Acute Toxicity:**
 - **Oral LD50 (rat):** ~895 mg/kg
 - **Irritation:** Causes eye and skin irritation
 - **Sensitization:** May cause allergic reactions via skin or inhalation
 - **Carcinogenicity:** Not classified as carcinogenic by IARC, NTP, or OSHA
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12. Ecological Information

- **Toxicity:** Harmful to aquatic organisms in high concentrations
 - **Persistence/Degradability:** Decomposes into sulfate, a naturally occurring substance
 - **Bioaccumulation:** Not expected
 - **Mobility in Soil:** High, due to water solubility
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13. Disposal Considerations

- **Waste Disposal:** Dispose of in accordance with local, regional, national, and international regulations.
 - **Contaminated Packaging:** Rinse thoroughly before disposal or recycling if possible. Do not allow to enter drains or watercourses.
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