1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Sodium Persulfate

Synonyms: Sodium Persulfate; Disodium Peroxydisulfate; Peroxydisulfuric acid, disodium salt; Peroxydisulfuric acid, sodium salt

Formula: Na₂O₈S₂ and Na₂S₂O₈

Recommended use: Polymerization initiator; Etchant and cleaner for printed circuit boards; Hair bleaching formulations; Secondary oil recovery; Oxidizing agent for a variety of organic reactions

Restrictions on use: No uses to be advised against were identified

Manufacturer: PeroxyChem LLC
1735 Market Street
Philadelphia, PA 19103
Phone: +1 215/299-5858 (General Information)
E-Mail: sdsinfo@peroxychem.com

Emergency telephone number: For leak, fire, spill or accident emergencies, call:
1 800/424-9300 (CHEMTREC - U.S.A.)
1 703/527-3887 (CHEMTREC - Collect - All Other Countries)
1 303/389-1409 (Medical - U.S. - Call Collect)

2. HAZARDS IDENTIFICATION

Emergency Overview

White, odorless crystals
Oxidizer
Decomposes in storage under conditions of moisture and/or excessive heat causing release of sulfur oxides and oxygen that supports combustion (See Section 10)

Potential health effects

Acute Toxicity

<table>
<thead>
<tr>
<th>Part of Body</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eyes</td>
<td>May cause irritation.</td>
</tr>
<tr>
<td>Skin</td>
<td>May cause irritation.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>May cause irritation of respiratory tract.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Harmful if swallowed.</td>
</tr>
</tbody>
</table>
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Chemical Name</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Persulfate</td>
<td>7775-27-1</td>
<td>&gt; 99</td>
<td></td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

General advice
Remove from exposure, lie down. Show this material safety data sheet to the doctor in attendance.

Eye contact
Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids intermittently. Consult a physician. In case of contact, immediately flush eyes with plenty of water. If symptoms persist, call a physician.

Skin contact
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if irritation develops and persists.

Inhalation
Remove from exposure, lie down. If breathing is irregular or stopped, administer artificial respiration. Call a physician immediately.

Ingestion
Do NOT induce vomiting. Call a physician or poison control center immediately. Rinse mouth. Drink 1 or 2 glasses of water.

5. FIRE-FIGHTING MEASURES

Flash Point
Not flammable

Suitable extinguishing media
Water. Cool containers with flooding quantities of water until well after fire is out.

Unsuitable Extinguishing Media
Do not use carbon dioxide or other gas filled fire extinguishers; they will have little effect on decomposing persulfate.

Explosion Data
- Sensitivity to Mechanical Impact: Not applicable
- Sensitivity to Static Discharge: Not applicable

Specific hazards arising from the chemical
Decomposes under fire conditions to release oxygen that intensifies the fire.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA
<table>
<thead>
<tr>
<th>Health Hazard</th>
<th>Flammability</th>
<th>Stability</th>
<th>Special Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
<td>OX</td>
</tr>
</tbody>
</table>

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Keep off any unprotected persons. Avoid contact with the skin and the eyes. Avoid breathing dust. Wear personal protective equipment.

Methods for containment
Vacuum, shovel or pump waste into a drum and label contents for disposal. Avoid dust formation. Store in closed container.

Methods for cleaning up
Clean up spill area and treat as special waste. Dispose of waste as indicated in Section 13.

Other
Never add other substances or combustible waste to product residues.
7. HANDLING AND STORAGE

Handling
Wear personal protective equipment. Use only in area provided with appropriate exhaust ventilation. Avoid dust formation. Handle product only in closed system or provide appropriate exhaust ventilation at machinery. Avoid contact with skin and eyes. Avoid breathing dust. Remove and wash contaminated clothing before re-use. Reference to other sections.

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat. Do not store near combustible materials. Avoid contamination of opened product. Keep away from food, drink and animal feedingstuffs. Avoid formation and deposition of dust.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure guidelines

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Persulfate</td>
<td>TWA: 0.1 mg/m³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7775-27-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>British Columbia</th>
<th>Quebec</th>
<th>Ontario TWAEV</th>
<th>Alberta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Persulfate</td>
<td>TWA: 0.1 mg/m³</td>
<td></td>
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</tr>
<tr>
<td>7775-27-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Occupational exposure controls

Engineering measures
Local exhaust ventilation w >90% efficiency.

Respiratory protection
If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Eye/face protection
Eye protection recommended. Chemical goggles consistent with EN 166 or equivalent.

Skin and body protection
Wear suitable protective clothing. Protective shoes or boots.

Hand protection
Protective gloves: Neoprene gloves, Polyvinylchloride, Natural Rubber.

Hygiene measures
Keep away from food, drink and animal feedingstuffs. Do not eat, drink or smoke when using this product. Wash hands before breaks and after shifts. Keep work clothes separate, remove contaminated clothing - launder after open handling of product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Crystalline solid</td>
</tr>
<tr>
<td>Color</td>
<td>white</td>
</tr>
<tr>
<td>Physical state</td>
<td>solid</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pH</td>
<td>6.0 (1% solution)</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>Decomposes on heating. 180 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>Decomposes</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>Oxidizer</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>6.07E-30 mm Hg at 25°C</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No information available</td>
</tr>
</tbody>
</table>
### Sodium Persulfate

- **Specific Gravity**: 1.68
- **Molecular Weight**: 238.1
- **Water solubility**: 730 g/L @ 25 °C
- **Percent volatile**: No information available
- **Partition coefficient**: No information available. (inorganic)
- **Viscosity**: No information available (Solid)
- **Decomposition Temperature**: > 100 °C (assume)
- **Autoignition Temperature**: No evidence of combustion up to 600°C

#### 10. STABILITY AND REACTIVITY

**Stability**

Stable.

**Conditions to avoid**

Heat, (decomposes at 275 °C), Moisture.

**Materials to avoid**

Acids, Bases, Halides, Oxidizing agents, Strong reducing agents, Combustible materials.

**Hazardous decomposition products**

None known.

**Hazardous polymerization**

Hazardous polymerization does not occur.

**Hazardous reactions**

Use of persulfates in chemical reactions requires appropriate precautions and design considerations for pressure and thermal relief.

Decomposing persulfates will evolve large volumes of gas and/or vapor, can accelerate exponentially with heat generation, and create significant and hazardous pressures if contained and not properly controlled or mitigated.

Use with alcohols in the presence of water has been demonstrated to generate conditions that require rigorous adherence to process safety methods and standards to prevent escalation to an uncontrolled reaction.

#### 11. TOXICOLOGICAL INFORMATION

**Acute effects**

**Eye irritation**

Irritating to eyes. Has been shown to exhibit eye irritation properties in human case reports following occupational exposure and consumer use. Slight irritation (rabbit).

**Skin irritation**

Irritating to skin. Persulfates in general, specifically diammonium persulfate and dipotassium persulfate, exhibited skin irritation properties in human case reports, following occupational exposure and consumer use. Slight irritation (rabbit).

**LD50 Oral**

1200 mg/kg (Rat) Sodium Persulfate

**LD50 Dermal**

> 10,000 mg/kg (rabbit) Sodium Persulfate

**LC50 Inhalation**

> 5.1 mg/L (4-hr) (Rat) Sodium Persulfate

**Sensitization**

Sensitizing to skin and respiratory system. Positive in a local lymph node assay.

**Chronic Toxicity**

**Carcinogenicity**

Did not show carcinogenic effects in animal experiments.

**Mutagenicity**

In vivo tests did not show mutagenic effects. In vitro tests did not show mutagenic effects.

**Target Organ Effects**

Eyes, Skin, Respiratory system.
12. ECOLOGICAL INFORMATION

Ecotoxicity

<table>
<thead>
<tr>
<th>Active Ingredient(s)</th>
<th>Duration</th>
<th>Species</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Persulfate</td>
<td>96 h</td>
<td>Rainbow trout</td>
<td>163</td>
<td>mg/L</td>
</tr>
<tr>
<td>Sodium Persulfate</td>
<td>48 h</td>
<td>Daphnia magna</td>
<td>133</td>
<td>mg/L</td>
</tr>
<tr>
<td>Sodium Persulfate</td>
<td>96 h</td>
<td>Grass shrimp</td>
<td>519</td>
<td>mg/L</td>
</tr>
<tr>
<td>Sodium Persulfate</td>
<td>72 h</td>
<td>Algae S. capricornutum</td>
<td>116</td>
<td>mg/L</td>
</tr>
</tbody>
</table>

Persistence and degradability
Biodegradability does not pertain to inorganic substances.

Bioaccumulation
Does not bioaccumulate.

Mobility
Dissociates into ions.

Other adverse effects
None known

13. DISPOSAL CONSIDERATIONS

Waste disposal methods
This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261). It must undergo special treatment, e.g. at suitable disposal site, to comply with local regulations.

RCRA D Waste Code
D001 (ignitable).

Contaminated packaging
Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

DOT
UN/ID No: UN 1505
Proper shipping name: SODIUM PERSULFATE
Hazard Class: 5.1
Packing group: III

TDG
UN/ID No: UN 1505
Proper shipping name: SODIUM PERSULFATE
Hazard Class: 5.1
Packing group: III

MEX
UN/ID No: UN 1505
Proper shipping name: SODIUM PERSULFATE
Hazard Class: 5.1
Packing group: III

ICAO/IATA
UN/ID No: UN 1505
Proper shipping name: SODIUM PERSULFATE
Hazard Class: 5.1
Packing group: III

IMDG/IMO
UN/ID No: UN 1505
Proper shipping name: SODIUM PERSULFATE
Hazard Class: 5.1
Packing group: III
**Sodium Persulfate**

**ADR/RID**
- UN/ID No: UN 1505
- Proper shipping name: SODIUM PERSULFATE
- Hazard Class: 5.1
- Packing group: III
- Description: Oxidizer

**ADN**
- Proper shipping name: SODIUM PERSULFATE
- Hazard Class: 5.1
- Packing group: III

**15. REGULATORY INFORMATION**

**International Inventories**
- TSCA Inventory (United States of America): Complies
- DSL (Canada): Complies
- NSDL (Canada): Complies
- EINECS/ELINCS (Europe): Complies
- ENCS (Japan): Complies
- IECSC (China): Complies
- KECL (Korea): Complies
- PICCS (Philippines): Complies
- AICS (Australia): Complies
- NZIoC (New Zealand): Complies

**U.S. Federal Regulations**

**SARA 313**
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

**SARA 311/312 Hazard Categories**
- Acute Health Hazard: yes
- Chronic Health Hazard: no
- Fire Hazard: yes
- Sudden Release of Pressure Hazard: no
- Reactive Hazard: no

**CERCLA**
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

**International Regulations**

**Mexico - Grade**
- Slight risk, Grade 1

**Canada**
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

**WHMIS Hazard Class**
- C Oxidizing materials
- D2A Very toxic materials
- D2B Toxic materials
16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health Hazard</th>
<th>Flammability</th>
<th>Stability</th>
<th>Special precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>J</td>
</tr>
</tbody>
</table>

NFPA/HMIS Ratings Legend
Severe = 4; Serious = 3; Moderate = 2; Slight = 1; Minimal = 0 Protection=J (Safety goggles, gloves, apron, combination dust and vapor respirator)

Product Certifications
Revision Date: 2014-04-15
Reason for revision: Initial Release.

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Prepared By
PeroxyChem
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End of Material Safety Data Sheet