MATERIAL SAFETY DATA SHEET
Sodium Persulfate

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Sodium Persulfate
SYNONYM(s): Sodium Peroxydisulfate; Disodium Peroxydisulfate

MANUFACTURER
FMC Corporation
Active Oxidant Division
1735 Market Street
Philadelphia, PA 19103
General Information: (215) 299-6000

Emergency Telephone Numbers:
CHEMTREC (800) 424-9300
Emergency Phone (303) 595-9048
(Medical) Call Collect
Emergency Phone (716) 879-0400
(Plant/Other) Call Collect

2. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS #</th>
<th>Wt.%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Persulfate</td>
<td>7775-27-1</td>
<td>&gt;99</td>
</tr>
</tbody>
</table>
3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

IMMEDIATE CONCERNS: Oxidizer: Decomposes in storage under conditions of moisture (water/water vapor) and/or excessive heat causing release of oxides of sulfur, nitrogen and oxygen that supports combustion. Decomposition could form a high temperature melt.

POTENTIAL HEALTH EFFECTS: Airborne persulfate dust may be irritating to eyes, nose, lungs, throat and skin upon contact. Exposure to high levels of persulfate dust may cause difficulty in breathing in sensitive persons.

4. FIRST AID MEASURES

EYES: Flush with plenty of water. Get medical attention if irritation occurs and persists.

SKIN: Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.

INGESTION: Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. See a medical doctor immediately.

INHALATION: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, contact a medical doctor.

NOTES TO MEDICAL DOCTOR: This product has low oral toxicity and is not irritating to the eyes and skin. Flooding of exposed areas with water is suggested, but gastric lavage or emesis induction for ingestions must consider possible aggravation of esophageal injury and the expected absence of system effects. Treatment is controlled removal of exposure followed by symptomatic and supportive care.

5. FIRE FIGHTING MEASURES

FLAMMABLE LIMITS: Non-combustible

EXTINGUISHING MEDIA: Deluge with water.

EXPLOSION HAZARDS: Product is non-combustible. On decomposition releases oxygen which may intensify fire. Presence of water accelerates decomposition.

FIRE FIGHTING PROCEDURES: Do not use carbon dioxide or other gas filled fire extinguishers; they will have no effect on decomposing persulfate. Wear full protective clothing and self contained breathing apparatus.
AUTOIGNITION TEMPERATURE: Not applicable. No evidence of combustion up to 800°C. Decomposition will occur upon heating.

FLASH POINT: Non-combustible

SENSITIVITY TO STATIC DISCHARGE: No data available

SENSITIVITY TO IMPACT: No data available

HAZARDOUS DECOMPOSITION PRODUCTS: Oxygen that supports combustion and oxides of sulfur and nitrogen.

6. ACCIDENTAL RELEASE MEASURES

RELEASE NOTES: Spilled material should be collected and put in approved DOT container and isolated for disposal. Isolated material should be monitored for signs of decomposition (fuming/smoking). If spilled material is wet, dissolve with large quantity of water and dispose as a hazardous waste. All disposals should be carried out according to regulatory agencies procedures.

7. HANDLING AND STORAGE

HANDLING: Use adequate ventilation when transferring product from bags or drums. Wear respiratory protection if ventilation is inadequate or not available. Use eye and skin protection. Use clean plastic or stainless steel scoops only.

STORAGE: Store (unopened) in a cool, clean, dry place away from point sources of heat, e.g. radiant heaters or steam pipes. Use first in, first out storage system. Avoid contamination of opened product. In case of fire or decomposition (fuming/smoking) deluge with plenty of water to control decomposition. For storage, refer to NFPA Bulletin 43A on storage of liquid and solid oxidizing materials.

COMMENTS: VENTILATION:
Provide mechanical general and/or local exhaust ventilation to prevent release of dust into work environment. Spills should be collected into suitable containers to prevent dispersion into the air.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>TWA (ACGIH)</th>
<th>STEL/Ceiling (ACGIH)</th>
<th>PEL (OSHA)</th>
<th>STEL/Ceiling (OSHA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Persulfate</td>
<td>0.1 mg/m3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ENGINEERING CONTROLS: Provide mechanical local general room ventilation to prevent release of dust into the work environment. Remove contaminated clothing immediately and wash before reuse.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Use cup type chemical goggles. Full face shield may be used.

RESPIRATORY: Use approved dust respirator when airborne dust is expected.

PROTECTIVE CLOTHING: Rubber or neoprene gloves. Normal work clothes. Rubber or neoprene footwear.

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR: None

APPEARANCE: White crystals

pH: (1% solution) @ 25°C = typically 5.0-7.0

PERCENT VOLATILE: Not applicable

VAPOR PRESSURE: Not applicable

VAPOR DENSITY: (Air = 1): Not applicable

BOILING POINT: Not applicable

MELTING POINT: Decomposes

SOLUBILITY IN WATER: % by wt. @ 25°C (77°F): 73

EVAPORATION RATE: (Butyl Acetate = 1): Not applicable

DENSITY: Not available

SPECIFIC GRAVITY: (H2O=1): 2.6

COEFF. OIL/WATER: Not applicable

ODOR THRESHOLD: Not applicable

OXIDIZING PROPERTIES: Oxidizer

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Heat and moisture.

STABILITY: Stable (becomes unstable in presence of heat, moisture and
contamination).

**POLYMERIZATION:** Will not occur

**HAZARDOUS DECOMPOSITION PRODUCTS:** Oxygen that supports combustion and oxides of sulfur and nitrogen.

**INCOMPATIBLE MATERIALS:** Acids, alkalis, halides (fluorides, chlorides, bromides), combustible materials, heavy metals, oxidizable materials, reducing agents and organic compounds.

11. **TOXICOLOGICAL INFORMATION**

**EYE EFFECTS:** Non-irritating (rabbit) [FMC Study Number: ICG/T-79.029]

**SKIN EFFECTS:** Non-irritating (rabbit); May be sensitizer to allergic persons. [FMC Study Number: ICG/T-79.029]

**DERMAL LD$_{50}$:** >10 g/kg [FMC Study Number: ICG/T-79.029]

**ORAL LD$_{50}$:** 895 mg/kg (rat) [FMC Study Number: ICG/T-79.029]

**INHALATION LC$_{50}$:** 5.10 mg/L (rat) [FMC 195-2017]

**TARGET ORGANS:** Eyes, skin, respiratory passages

**ACUTE EFFECTS FROM OVEREXPOSURE:** Dust may be harmful and irritating. May be harmful if swallowed.

**CHRONIC EFFECTS FROM OVEREXPOSURE:** Sensitive persons may develop dermatitis and asthma [Respiration 38:144, 1979]. Groups of male and female rats were fed 0, 300 or 3000 ppm sodium persulfate in the diet for 13 weeks, followed by 5000 ppm for 5 weeks. Microscopic examination of tissues revealed some injury to the gastrointestinal tract at the high dose (3000 ppm) only. This effect is not unexpected for an oxidizer at high concentrations. [Ref. FMC I90-1151, Toxicologist 1:149, 1981]

**CARCINOGENICITY:**

IARC: Not listed

NTP: Not listed

OSHA: Not listed

OTHER: ACGIH: Not listed

12. **ECOLOGICAL INFORMATION**

**ECOTOXICOLOGICAL INFORMATION:**
Bluegill sunfish, 96-hour LC50 = 771 mg/L [FMC Study I92-1250]
Rainbow trout, 96-hour LC50 = 163 mg/L [FMC Study I92-1251]
Daphnia, 48-hour LC50 = 133 mg/L [FMC Study I92-1252]
Grass shrimp, 96-hour LC50 = 519 mg/L [FMC Study I92-1253]

**CHEMICAL FATE INFORMATION:** Biodegradability does not apply to inorganic substances.

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### 13. DISPOSAL CONSIDERATIONS

**DISPOSAL METHOD:** Dispose as a hazardous waste in accordance with regulatory agencies.

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### 14. TRANSPORT INFORMATION

**U.S. DOT (DEPARTMENT OF TRANSPORTATION)**

**PROPER SHIPPING NAME:** Sodium Persulfate

**UN/NA NUMBER:** UN 1505

**PLACARDS:** 5.1 (Oxidizer)

**LABEL:** Oxidizer

**OTHER SHIPPING INFORMATION:**
- DOT Marking: Sodium Persulfate, UN 1505
- Hazardous Substance/RQ: Not applicable
- 49 STCC Number: 4918733
- 225 lb. fiber drum (DOT 21C250 w/polyliner)
- 55 lb. poly bag (DOT 44P)
- 1000-2000 lb. IBC (DOT Exemption E8489)

**SPECIAL SHIPPING NOTES:** IMDG: Sodium Persulfate
- IATA: Sodium Persulfate
- Protect from physical damage. Do not store near acids, moisture or heat.

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### 15. REGULATORY INFORMATION

**UNITED STATES**

**SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)**

**SECTION 311 HAZARD CATEGORY (40 CFR 370):** Fire Hazard, Immediate (Acute) Health Hazard
SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370): 10000 lbs.

SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372): Not listed

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355): Not applicable

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)

CERCLA REGULATORY (40 CFR 302.4): (unlisted) RQ = 100 lbs., Ignitability

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA STATUS (40 CFR 710): Listed

RCRA STATUS: Waste No. D001

CANADA

WHMIS (WORKER HAZARDOUS MATERIALS INFORMATION SYSTEM): Product Identification No.: 1505
Hazard Classification: Class C (Oxidizer), Class D, Div. 2, Subdiv. B. (Toxic)
Ingredient Disclosure List: Listed

16. OTHER INFORMATION

REVISION SUMMARY Revision #: 2

This MSDS replaces the October 07, 1997 MSDS. Any changes in information are as follows:
In Section 9
(Group Field) for Water Solubility

In Section 16
Section 16 Footnotes

<table>
<thead>
<tr>
<th>HMIS RATING</th>
<th>NFPA RATING</th>
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<tr>
<td>HEALTH: 1</td>
<td>HEALTH: 1</td>
</tr>
<tr>
<td>FLAMMABILITY 0</td>
<td>FLAMMABILITY 0</td>
</tr>
<tr>
<td>REACTIVITY: 1</td>
<td>REACTIVITY: 1</td>
</tr>
<tr>
<td>PROTECTION: J</td>
<td>OX</td>
</tr>
</tbody>
</table>
Key
4 = Severe
3 = Serious
2 = Moderate
1 = Slight
0 = Minimal

HMIS RATINGS NOTES:
Protection = J (Safety goggles, gloves, apron & combination dust & vapor respirator)

The contents and format of this MSDS are in accordance with OSHA Hazard Communication Standard and Canada's Workplace Hazardous Information System (WHMIS).

National Fire Protection Association (NFPA)
SPECIAL = OX (Oxidizer)

Hazardous Materials Identification System (HMIS)

Distributed by: Kepro Circuit Systems, Inc.
Catalog #'s -- SP-1G, SP-4G, SP-12G, SP-20G