

# MATERIAL SAFETY DATA SHEET

## Sodium Persulfate



**MSDS Ref. No.:** 7775-27-1  
**Date Approved:** 04/30/2006  
**Revision No.:** 12

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This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200; the Canada's Workplace Hazardous Materials Information System (WHMIS) and, the EC Directive, 2001/58/EC.

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## 1. PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** Sodium Persulfate

**SYNONYMS:** Sodium Peroxydisulfate; Disodium Peroxydisulfate

**GENERAL USE:** Polymerization initiator. Etchant and cleaner in manufacture of printed circuit boards. Booster in hair bleaching formulations in cosmetics. Secondary oil recovery systems as a polymerization initiator and a gel breaker.

### MANUFACTURER

FMC CORPORATION  
FMC Peroxygens  
1735 Market Street  
Philadelphia, PA 19103  
(215) 299-6000 (General Information)

### EMERGENCY TELEPHONE NUMBERS

(303) 595-9048 (Medical - U.S. - Call Collect)

For leak, fire, spill, or accident emergencies, call:  
(800) 424-9300 (CHEMTREC - U.S.A. & Canada)

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## 2. HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW:

- White, odorless, crystals
- Oxidizer.
- Decomposes in storage under conditions of moisture (water/water vapor) and/or excessive heat causing release of oxides of sulfur and oxygen that supports combustion. Decomposition could form a high temperature melt. See Section 10 ("Stability and Reactivity").

**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.

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### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt. %	EC No.	EC Class
Sodium Persulfate	7775-27-1	>99	231-892-1	Not classified

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### 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.

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### 5. FIRE FIGHTING MEASURES

**EXTINGUISHING MEDIA:** Deluge with water.

**FIRE / 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 persulfates. Wear full protective clothing and self-contained breathing apparatus.

**FLAMMABLE LIMITS:** Non-combustible

**SENSITIVITY TO IMPACT:** No data available

**SENSITIVITY TO STATIC DISCHARGE:** Not available

## 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 430 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

Chemical Name	ACGIH	OSHA	Supplier
Sodium Persulfate	0.1 mg/m <sup>3</sup> (TWA)		

**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:** Normal work clothes. Rubber or neoprene footwear.

**GLOVES:** Rubber or neoprene gloves. Thoroughly wash the outside of gloves with soap and water prior to removal. Inspect regularly for leaks.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>ODOR:</b>	None
<b>APPEARANCE:</b>	White crystals
<b>AUTOIGNITION TEMPERATURE:</b>	Not applicable. No evidence of combustion up to 800°C. Decomposition will occur upon heating.
<b>BOILING POINT:</b>	Not applicable
<b>COEFFICIENT OF OIL / WATER:</b>	Not applicable
<b>DENSITY / WEIGHT PER VOLUME:</b>	Not available
<b>EVAPORATION RATE:</b>	Not applicable (Butyl Acetate = 1)
<b>FLASH POINT:</b>	Non-combustible
<b>MELTING POINT:</b>	Decomposes
<b>ODOR THRESHOLD:</b>	Not applicable
<b>OXIDIZING PROPERTIES:</b>	Oxidizer
<b>PERCENT VOLATILE:</b>	Not applicable
<b>pH:</b>	typically 5.0 - 7.0 @ 25 °C (1% solution)
<b>SOLUBILITY IN WATER:</b>	73 % @ 25 °C (by wt.)
<b>SPECIFIC GRAVITY:</b>	2.6 (H <sub>2</sub> O=1)
<b>VAPOR DENSITY:</b>	Not applicable (Air = 1)
<b>VAPOR PRESSURE:</b>	Not applicable

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## 10. STABILITY AND REACTIVITY

<b>CONDITIONS TO AVOID:</b>	Heat, moisture and contamination.
<b>STABILITY:</b>	Stable (becomes unstable in presence of heat, moisture and/or contamination).
<b>POLYMERIZATION:</b>	Will not occur
<b>INCOMPATIBLE MATERIALS:</b>	Acids, alkalis, halides (fluorides, chlorides, bromides and iodides), combustible materials, most metals and heavy metals, oxidizable materials, other oxidizers, reducing agents, cleaners, and organic or carbon containing compounds. Contact

with incompatible materials can result in a material decomposition or other uncontrolled reactions.

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

**COMMENTS:** PRECAUTIONARY STATEMENT: 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.

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## 11. TOXICOLOGICAL INFORMATION

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

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

**DERMAL LD<sub>50</sub>:** > 10 g/kg [FMC Study Number: ICG/T-79.029]

**ORAL LD<sub>50</sub>:** 895 mg/kg (rat) [FMC Study Number: ICG/T-79.029]

**INHALATION LC<sub>50</sub>:** 5.1 mg/l (rat) [FMC I95-2017]

**SENSITIZATION:** May be sensitizing to allergic persons. [FMC Study Number: ICG/T-79.029]

**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:**

**NTP:** Not listed  
**IARC:** Not listed  
**OSHA:** Not listed  
**OTHER:** ACGIH: Not listed

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**12. ECOLOGICAL INFORMATION****ECOTOXICOLOGICAL INFORMATION:**

Bluegill sunfish, 96-hour LC<sub>50</sub> = 771 mg/L [FMC Study I92-1250]  
Rainbow trout, 96-hour LC<sub>50</sub> = 163 mg/L [FMC Study I92-1251]  
Daphnia, 48-hour LC<sub>50</sub> = 133 mg/L [FMC Study I92-1252]  
Grass shrimp, 96-hour LC<sub>50</sub> = 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 local, state and federal regulatory agencies.

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**14. TRANSPORT INFORMATION****U.S. DEPARTMENT OF TRANSPORTATION (DOT)**

<b>PROPER SHIPPING NAME:</b>	Sodium Persulfate
<b>PRIMARY HAZARD CLASS / DIVISION:</b>	5.1 (Oxidizer)
<b>UN/NA NUMBER:</b>	UN 1505
<b>PACKING GROUP:</b>	III
<b>LABEL(S):</b>	5.1 (Oxidizer)
<b>PLACARD(S):</b>	5.1 (Oxidizer)
<b>MARKING(S):</b>	Sodium Persulfate, UN 1505
<b>ADDITIONAL INFORMATION:</b>	Hazardous Substance/RQ: Not applicable

49 STCC Number: 4918733

This material is shipped in 225 lb. fiber drums, 55 lb. poly bags and 1000 - 2200 lb. IBC's (supersacks).

## **INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)**

**PROPER SHIPPING NAME:** Sodium Persulfate

## **INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) / INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)**

**PROPER SHIPPING NAME:** Sodium Persulfate

### **OTHER INFORMATION:**

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 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355, APPENDIX A):**

Not applicable

##### **SECTION 311 HAZARD CATEGORIES (40 CFR 370):**

Fire Hazard, Immediate (Acute) Health Hazard

##### **SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370):**

The Threshold Planning Quantity (TPQ) for this product, if treated as a mixture, is 10,000 lbs; however, this product contains the following ingredients with a TPQ of less than 10,000 lbs.:

None

##### **SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372):**

Not listed

#### **CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)**

##### **CERCLA DESIGNATION & REPORTABLE QUANTITIES (RQ) (40 CFR 302.4):**

Unlisted, RQ = 100 lbs., Ignitability

#### **TSCA (TOXIC SUBSTANCE CONTROL ACT)**

##### **TSCA INVENTORY STATUS (40 CFR 710):**

Listed

**RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)  
RCRA IDENTIFICATION OF HAZARDOUS WASTE (40 CFR 261):**  
Waste Number: D001

**CANADA****WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):**

Product Identification Number: 1505  
Hazard Classification / Division: Class C (Oxidizer), Class D, Div. 2, Subdiv. B. (Toxic)  
Ingredient Disclosure List: Listed

**INTERNATIONAL LISTINGS**

Sodium persulfate:  
Australia (AICS): Listed  
China: Listed  
Japan (ENCS): (1)-1131  
Korea: KE-12369  
Philippines (PICCS): Listed

**HAZARD, RISK AND SAFETY PHRASE DESCRIPTIONS:**

EC Symbols: (Not classified as hazardous)  
EC Risk Phrases: (Not classified as hazardous)  
EC Safety Phrases: (Not classified as hazardous)

**16. OTHER INFORMATION****HMIS**

Health	1
Flammability	0
Physical Hazard	1
Personal Protection (PPE)	J

Protection = J (Safety goggles, gloves, apron & combination dust & vapor respirator)

HMIS = Hazardous Materials Identification System

Degree of Hazard Code:  
4 = Severe



3 = Serious  
 2 = Moderate  
 1 = Slight  
 0 = Minimal

**NFPA**

Health	1
Flammability	0
Reactivity	1
Special	OX

SPECIAL = OX (Oxidizer)

NFPA = National Fire Protection Association

Degree of Hazard Code:

4 = Extreme  
 3 = High  
 2 = Moderate  
 1 = Slight  
 0 = Insignificant

**REVISION SUMMARY:**

This MSDS replaces Revision #11, dated February 22, 2005.

Changes in information are as follows:

Section 1 (Product and Company Identification)  
 Section 3 (Composition / Information on Ingredients)  
 Section 16 (Other Information)

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