

MATERIAL SAFETY DATA SHEET

Potassium Persulfate



MSDS Ref. No.: 7727-21-1
Date Approved: 06/26/2009
Revision No.: 11

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

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Potassium Persulfate

SYNONYMS: Potassium Peroxydisulfate; Dipotassium Peroxydisulfate

ALTERNATE PRODUCT NAME(S): FMC Broke Treatment 400, Potassium Persulfate C/Orange, Potassium Persulfate Screen/Y

GENERAL USE: Initiator for emulsion polymerization reactions, in the preparation of acrylic, vinyl, styrene, neoprene, styrene-butadiene and other resins. It is also used in depolymerization in modification of starch.

Booster in hair bleaching formulations in cosmetics.

MANUFACTURER

FMC CORPORATION
FMC Peroxygens
1735 Market Street
Philadelphia, PA 19103
(215) 299-6000 (General Information)
msdsinfo@fmc.com (Email - 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)

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.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt.%	EC No.	EC Class
Potassium Persulfate	7727-21-1	>99	231-781-8	O-Xn-Xi; R8-22-R36/37/38-42/43

4. FIRST AID MEASURES

EYES: Flush with water for at least 15 minutes. If irritation occurs and persists, obtain medical attention.

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 and dermal toxicity and is not irritating to the skin. It is minimally irritating to the eyes. Flooding of exposed areas with water is suggested. For gastric lavage or emesis induction, consider the 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

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: Not 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
Potassium Persulfate	0.1 mg/m ³ (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.

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR:	None
APPEARANCE:	White crystals
AUTOIGNITION TEMPERATURE:	Not applicable. No evidence of combustion up to 800°C. Decomposition will occur upon heating.
BOILING POINT:	Not applicable
COEFFICIENT OF OIL / WATER:	Not available
DENSITY / WEIGHT PER VOLUME:	Not available
EVAPORATION RATE:	Not applicable (Butyl Acetate = 1)
FLASH POINT:	Non-combustible
MELTING POINT:	Decomposes
ODOR THRESHOLD:	Not available
OXIDIZING PROPERTIES:	Oxidizer
PERCENT VOLATILE:	Not applicable
pH:	typically 5.0 - 8.0 @ 25 °C (1% solution)
SOLUBILITY IN WATER:	6.0 % @ 25 °C (by wt.)
SPECIFIC GRAVITY:	2.48 (H ₂ O=1)
VAPOR DENSITY:	Not applicable (Air = 1)
VAPOR PRESSURE:	Not applicable

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID:	Heat, moisture and contamination.
STABILITY:	Stable (becomes unstable in presence of heat, moisture and/or contamination).
POLYMERIZATION:	Will not occur
INCOMPATIBLE MATERIALS:	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.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: Minimally irritating (rabbit) [FMC Study ICG/T-79.024]

SKIN EFFECTS: Non-irritating (rabbit) [FMC Study ICG/T-79.024]

DERMAL LD₅₀: > 10 g/kg (rabbit) [FMC Study Number: ICG/T-79.024]

ORAL LD₅₀: 1,130 mg/kg (rat) [FMC Study ICG/T-79.024]

INHALATION LC₅₀: > 42.9 mg/l (rat) Aerosol [FMC Study ICG/T-79.024]

SENSITIZATION: May be sensitizing to allergic persons.

TARGET ORGANS: Eyes, skin, nose, throat, lungs

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].

CARCINOGENICITY:

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

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: No data available for the product.

Data below are for sodium persulfate.

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.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dispose as a hazardous waste in accordance with local, state and federal regulatory agencies.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

PROPER SHIPPING NAME: Potassium Persulfate
PRIMARY HAZARD CLASS / DIVISION: 5.1 (Oxidizer)
UN/NA NUMBER: UN 1492
PACKING GROUP: III
LABEL(S): 5.1 (Oxidizer)

PLACARD(S): 5.1 (Oxidizer)
MARKING(S): Potassium Persulfate, UN 1492
REPORTABLE QUANTITY (RQ): Not applicable
ADDITIONAL INFORMATION: 49 STCC Number: 4918733
This material is shipped in 225 lb. fiber drums , 55 lb. poly bags and 1000 - 2000 lb. IBC's (supersacks)

INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)

PROPER SHIPPING NAME: Potassium Persulfate

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

PROPER SHIPPING NAME: Potassium Persulfate

OTHER INFORMATION:

Protect against physical damage.

Do not store near acids, moisture or heat.

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

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

Not listed

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):

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

Product Identification Number: 1492

Hazard Classification / Division: C
D2A
D2B

Domestic Substance List: Listed

INTERNATIONAL LISTINGS

Potassium persulfate:

Australia (AICS): Listed

China: Listed

Japan (ENCS): (1)-456

Korea: KE-12177

Philippines (PICCS): Listed

HAZARD AND RISK PHRASE DESCRIPTIONS:

EC Symbols: O (Oxidizer)
Xn (Harmful)
Xi (Irritant)

EC Risk Phrases: R8 (Contact with combustible material may cause fire)
 R22 (Harmful if swallowed.)
 R36/37/38 (Irritating to eyes, respiratory system and skin.)
 R42/43 (May cause sensitization by inhalation or by skin contact.)

COMMENTS:

European Community Regulation:
 Yes, Oxidizing 10/200 tonnes.

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 #10, dated April 30, 2006.

Changes in information are as follows:
Section 1 (Product and Company Identification)
Section 11 (Toxicological Information)
Section 15 (Regulatory Information)
Section 16 (Other Information)

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