

MATERIAL SAFETY DATA SHEET

Klozur® CR



MSDS Ref. No.: F18-44-9
Date Approved: 01/03/2008
Revision No.: 1

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: Klozur® CR

GENERAL USE: For chemical oxidation and aerobic bioremediation, petroleum hydrocarbon remediation, creosote remediation and partially halogenated hydrocarbon remediation.

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:

- Odorless, off-white fine granular solid (may have separation or noticeable two-tone appearance).
- Oxidizer.
- Contact with combustibles may cause fire.
- Under fire conditions product may decompose releasing oxygen that intensifies fire.
- 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").
- Deluge container with water at safe distance or in protected area.
- May be severely irritating to the eyes.
- May be harmful if swallowed.

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

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt.%	EC No.	EC Class
Proprietary Mixture			None	Not classified

COMMENTS: FMC is withholding the specific chemical identity under provision of the OSHA Hazard Communication Rule Trade Secrets (1910.1200(i)(1)). The specific chemical identity will be made available to health professionals in accordance with 29 CFR 1910.1200(i) (1) (2) (3) (4). This Material Safety Data Sheet provides information for employee training and hazard identification.

4. FIRST AID MEASURES

EYES: Immediately flush with water for at least 15 minutes, lifting the upper and lower eyelids intermittently. See a medical doctor or ophthalmologist immediately.

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, obtain medical attention.

NOTES TO MEDICAL DOCTOR: Direct contact with the eyes may have serious consequences; therefore, direct contact with eyes should be avoided. Contaminated external surfaces should be flooded with water, and direct eye contact deserves ophthalmologic evaluation. If ingested, gastrointestinal irritation but not caustic burns are to be expected; dilution with water indicated as may be gastric evacuation via emesis or lavage if large doses or severe irritation is evident.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Deluge with plenty of water.

FIRE / EXPLOSION HAZARDS: Product is non-combustible. Under fire conditions, may decompose and release oxygen gas, which may intensify fire. Presence of water accelerates decomposition. Mixtures with polysulfide polymers may ignite.

FIRE FIGHTING PROCEDURES: Use flooding quantities of water. Use water spray to keep fire exposed containers cool. Do not use carbon dioxide or other gas filled fire extinguishers; they will have no effect on decomposition. Wear full protective clothing and self-contained breathing apparatus.

FLAMMABLE LIMITS: Non-combustible

SENSITIVITY TO IMPACT: Oxidizable materials can be ignited by grinding and may become explosive.

SENSITIVITY TO STATIC DISCHARGE: Not available

6. ACCIDENTAL RELEASE MEASURES

RELEASE NOTES: Confine and collect spill, put into an approved DOT container (do not return to original container) and isolate for disposal. Isolated material should be monitored for signs of decomposition (fuming / smoking). If spilled material is wet, dissolve with large quantities of water and dispose as a hazardous waste. Runoff to sewer may create fire or explosion hazard (do not flush powdered material into sewer). Dispose of wastes according to the method outlined in Section 13, "Disposal Considerations".

7. HANDLING AND STORAGE

HANDLING: Avoid contact by using personal protective equipment. Use respiratory protective equipment when release of airborne dust is expected. If compounded with organics or combustible materials be sure to exclude moisture. Use clean plastic or stainless steel scoops only.

STORAGE: Keep dry (reacts with moisture). Use first in, first out storage system. Store unopened in a cool, clean, dry place away from point sources of heat (e.g. steam pipes, radiant heaters, hot air vents or welding sparks). Keep container tightly closed when not in use. Avoid contamination of opened product. Avoid contact with reducing agents. 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. If ventilation is inadequate or not available, use dust respirator and eye protection.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

Chemical Name	ACGIH	OSHA	Supplier
Proprietary Ingredient	5 mg/m ³ (TWA)	5 mg/m ³ (TWA)	5 mg/m ³ (TWA)
Proprietary Ingredient	0.1 mg/m ³ (TWA)		

ENGINEERING CONTROLS: Provide mechanical local exhaust ventilation to prevent release of dust into the work area. If release is expected use respiratory protection. 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 with full face piece.

PROTECTIVE CLOTHING: Long sleeve shirt, impervious apron or clothing. 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:	Odorless
APPEARANCE:	Off-white fine granular solid
AUTOIGNITION TEMPERATURE:	Non-combustible
BOILING POINT:	No data available
COEFFICIENT OF OIL / WATER:	Not available
DENSITY / WEIGHT PER VOLUME:	(Bulk) 51.8 lbs/ft ³ (loose)
EVAPORATION RATE:	Not applicable (Butyl Acetate = 1)
FLASH POINT:	Not applicable
MELTING POINT:	Decomposes on heating (About 275°C)
OXIDIZING PROPERTIES:	Oxidizer
PERCENT VOLATILE:	Not applicable

pH:	11.2 slurry (1% solution)
SOLUBILITY IN WATER:	Sparingly soluble
SPECIFIC GRAVITY:	1 - 1.19 (5% to 30% slurries)
VAPOR DENSITY:	Not applicable (Air = 1)
VAPOR PRESSURE:	Not applicable

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID:	Heat (decomposes at 275°C), moisture, reducing agents. Grinding with organics.
STABILITY:	Stable (decomposition could occur when exposed to heat or moisture)
POLYMERIZATION:	Will not occur
INCOMPATIBLE MATERIALS:	Grinding mixtures with organics (oxidizable materials can be ignited by grinding and may become explosive); heavy metals. Grinding mixtures with organics (oxidizable materials can be ignited by grinding and may become explosive); heavy metals. 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, nitrogen, and calcium hydroxide.

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: No data available for the formulation.
Proprietary Component: Severely irritating to unwashed eyes; minimally irritating to washed eyes (rabbit) [FMC Ref. I88-1053]
Proprietary Component: Non-irritating (rabbit) [FMC Ref. ICG/T-79.029]

SKIN EFFECTS: No data available for the formulation.
Proprietary Component: Non-irritating (rabbit) [FMC Ref. I88-1054]
Proprietary Component: Non-irritating (rabbit) [FMC Ref. ICG/T-79.029]

DERMAL LD₅₀: No data available for the formulation.
Proprietary Component: > 10 g/kg (rat) [FMC Ref. ICG/T-79.026 and 79.029]

ORAL LD₅₀: No data available for the formulation.
Proprietary Component: > 5 g/kg (rat) [FMC Ref. I88-1052]
Proprietary Component: 895 mg/kg (rat) [FMC Ref. ICG/T-79.029]

INHALATION LC₅₀: No data available for the formulation.
Proprietary Component: > 17 mg/l (1 h) (rat) [FMC Ref. ICG/T-79.026]
Proprietary Component: 5.1 mg/l (rat) [FMC Ref. I95-2017]

SENSITIZATION: No data available for the formulation.
Proprietary Component: (Skin) May be sensitizing to allergic persons. [FMC Ref. ICG/T-79.029]

TARGET ORGANS: Eyes, skin, respiratory passages

ACUTE EFFECTS FROM OVEREXPOSURE: May be harmful if swallowed. Direct contact with the eyes may have serious consequences; therefore, direct contact with eyes should be avoided. Airborne dusts may be irritating to the nose, throat and lungs, causing wheezing and/or shortness of breath. Dusts may also be irritating to eyes and skin upon contact; therefore, flooding of exposed areas with water is suggested.

CHRONIC EFFECTS FROM OVEREXPOSURE: No data available for the product. Sensitive persons may develop dermatitis and asthma. One of the proprietary components was fed to groups of male and female rats at 0, 300 and 3,000 ppm in the diet for 13 weeks, followed by 5,000 ppm for 5 weeks. Microscopic examination of tissues revealed some injury to the gastrointestinal tract at the highest dose (3,000 ppm) only. This effect is not unexpected for an oxidizer at high concentrations.

CARCINOGENICITY:

NTP:	Not listed
IARC:	Not listed
OSHA:	Not listed
OTHER:	Not Listed (ACGIH)

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL DATA: Biodegradability does not apply to inorganic substances.
As indicated by chemical properties oxygen is released into the environment.

ECOTOXICOLOGICAL INFORMATION: No data available for the formulation.

Proprietary Component

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]

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dissolve in water to allow the release of oxygen and dispose via a treatment system in accordance with governmental agencies regulations. Contact appropriate regulatory agency prior to disposal.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

PROPER SHIPPING NAME:	Oxidizing solid, n.o.s. (sodium persulfate, calcium peroxide)
PRIMARY HAZARD CLASS / DIVISION:	5.1 (Oxidizer)
UN/NA NUMBER:	UN 1479
PACKING GROUP:	II
LABEL(S):	5.1 (Oxidizer)
PLACARD(S):	5.1 (Oxidizer)
MARKING(S):	Oxidizing solid, n.o.s. (sodium persulfate, calcium peroxide), UN1479
ADDITIONAL INFORMATION:	Hazardous Substance/RQ: Not applicable 49 STCC Number: 4918733 This material is shipped in 45 lb. polyethylene pail with vented screw-on lid (approx 5.5 gallon)

INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)

PROPER SHIPPING NAME:	Oxidizing solid, n.o.s. (sodium persulfate, calcium peroxide)
------------------------------	---

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

PROPER SHIPPING NAME:	Oxidizing solid, n.o.s. (sodium persulfate,
------------------------------	---

calcium peroxide)

ADDITIONAL INFORMATION:

Combination packaging is recommended for air transport.

OTHER INFORMATION:

Place spilled product in suitable container and wash residue with plenty of water. See Section 6 (Accidental Release Measures) above for additional instructions.

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

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):

Proprietary component: 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.

Hazard Classification / Division: C
D2B
D2A
E

Domestic Substance List: Listed (all components)

INTERNATIONAL LISTINGS

Proprietary Component
Australia (AICS): Listed
China: Listed
Japan (ENCS): (1)-190
Korea: KE-04597
Philippines (PICCS): Listed

Proprietary Component
Australia (AICS): Listed
China: Listed
Japan (ENCS): (1)-181
Korea: KE-04518
Philippines (PICCS): Listed

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

16. OTHER INFORMATION

HMIS

Health	2
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	2
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:

New MSDS.

Klozur and FMC Logo - Trademarks of FMC Corporation

© 2008 FMC Corporation. All Rights Reserved.

FMC Corporation believes that the information and recommendations contained herein (including data and statements) are accurate as of the date hereof. NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY, OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN. The information provided herein relates only to the specific product designated and may not be applicable where such product is used in combination with any other materials or in any process. It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Further, since the conditions and methods of use are beyond the control of FMC Corporation, FMC Corporation expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information.