

MATERIAL SAFETY DATA SHEET

Ammonium Persulfate



MSDS Ref. No: 7727-54-0
Version: US/Canada
Date Approved: 07/19/2001
Revision No: 5

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Ammonium Persulfate

SYNONYM(s): Ammonia Peroxydisulfate

ALTERNATE TRADE NAME(S): Ammonium Persulfate ACS Grade, Ammonium Persulfate Coarse/G, Ammonium Persulfate Coarse/O, Ammonium Persulfate Screen/B

GENERAL USE: Polymerization initiator in polymer chemistry. 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
Active Oxidant Division
1735 Market Street
Philadelphia, PA 19103
General Information: (215) 299-6000

Emergency Telephone Numbers:

CHEMTREC (U.S.): (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

<u>Chemical Name</u>	<u>CAS#</u>	<u>Wt.%</u>
Ammonium Persulfate	7727-54-0	>99

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 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.

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 moderate oral toxicity and is minimally irritating to the eyes. Flooding of exposed areas with water is suggested, but gastric lavage or emesis induction for ingestions must consider the possible aggravation of esophageal injury and the expected absence of systemic 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.

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.

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: Not available

SENSITIVITY TO IMPACT: Not 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 when contact is expected. 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

<u>Chemical Name</u>	<u>TWA</u> <u>(ACGIH)</u>	<u>STEL/Ceiling</u> <u>(ACGIH)</u>	<u>PEL</u> <u>(OSHA)</u>	<u>STEL/Ceiling</u> <u>(OSHA)</u>
Ammonium Persulfate	0.1 mg/m ³			

ENGINEERING CONTROLS: Provide mechanical local and/or general room ventilation to prevent release of dust into the work area. Remove contaminated clothing immediately and wash before reuse.

PERSONAL PROTECTIVE EQUIPMENT

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

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

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

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR: None

APPEARANCE: White crystals

pH: (1% solution) = typically 4.0

PERCENT VOLATILE: Not applicable

VAPOR PRESSURE: Not applicable

VAPOR DENSITY: Not applicable

BOILING POINT: Not applicable

MELTING POINT: Decomposes

SOLUBILITY IN WATER: % by wt. @ 25°C (77°F): 85

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

DENSITY: Not available

SPECIFIC GRAVITY: (H₂O=1): 1.98

COEFF. OIL/WATER: Not available

ODOR THRESHOLD: Not available

OXIDIZING PROPERTIES: Oxidizer

COMMENTS:

Self Accelerating Decomposition Temperature (SADT) > 80°C (225 lb drum)

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: Minimally irritating (rabbit) [FMC I87-0968]

SKIN EFFECTS: Non-irritating (rabbit); May be sensitizer to allergic persons. [FMC Study I87-0970]

DERMAL LD₅₀: >2000 mg/kg (rabbit) [FMC I91-1200]

ORAL LD₅₀: 742 mg/kg (male rat); 700 mg/kg (female rat) [FMC I2001-2331]

INHALATION LC₅₀: >2.95 mg/L (rat, 4 hr., maximum attainable concentration) [FMC I87-0969]

TARGET ORGANS: Sensory irritation - eyes, nose, throat and lungs

ACUTE EFFECTS FROM OVEREXPOSURE: Dust may be harmful and irritating. Ammonium persulfate has low dermal toxicity and is moderately toxic when ingested. Product is minimally irritating to the eyes and non-irritating to the skin.

CHRONIC EFFECTS FROM OVEREXPOSURE: Sensitive persons may develop dermatitis and asthma [Respiration 38:144, 1979].

CARCINOGENICITY:

IARC: Not listed

NTP: Not listed

OSHA: Not listed

OTHER: ACGIH: Not listed

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:

Bluegill sunfish, 96-hr LC₅₀ = 103 mg/L [FMC Study I92-1246]

Rainbow trout, 96-hr LC₅₀ = 76.3 mg/L [FMC Study I92-1247]

Daphnia, 48-hr LC₅₀ = 120 mg/L [FMC Study I92-1248]

Grass shrimp, 96-hr LC₅₀ = 391 mg/L [FMC Study I92-1249]

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: Ammonium Persulfate

PRIMARY HAZARD CLASS/DIVISION: 5.1 (Oxidizer)

UN/NA NUMBER: UN 1444

PACKING GROUP: III

PLACARDS: 5.1 (Oxidizer)

LABEL: 5.1 (Oxidizer)

OTHER SHIPPING INFORMATION:

DOT Marking: Ammonium Persulfate, UN 1444

Hazardous Substance/RQ: Not applicable

49 STCC Number: 4918733

This material is shipped in 225 lb. fiber drums, 55 lb. poly bags and 1000-2000 lb. IBC's (supersacks).

SPECIAL SHIPPING NOTES:

IMDG: Ammonium Persulphate

IATA: Ammonium Persulphate

Protect from physical damage. Do not store near acids, moisture or heat.

Ship in refrigerated trucks when outside temperature exceeds 113°F.

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

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

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

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 (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM): Product Identification No.: 1444

Hazard Classification: Class C (Oxidizer), Class D, Div. 2, Subdiv. B. (Toxic)

Ingredient Disclosure List: Listed

16. OTHER INFORMATION

REVISION SUMMARY Revision #: 5

This MSDS replaces the January 26, 2001 MSDS. Any changes in information are as follows:

In Section 11

Oral LD50

HMIS RATING

HEALTH:	1
FLAMMABILITY	0
REACTIVITY:	1
PROTECTION:	J

NFPA RATING

HEALTH:	1
FLAMMABILITY	0
REACTIVITY:	1
SPECIAL:	OX

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)