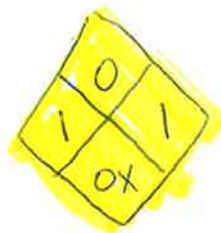


014 02/10/97 AMMONIUM PERSULFATE

PRODUCT NAME:

AMMONIUM PERSULFATE
AMMONIUM PERSULFATE PLUS
AMMONIUM PERSULFATE COARSE
AMMONIUM PERSULFATE

Health: 1
Flammability: 0
Reactivity: 1



MSDS #: FM000050

1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

PRODUCT NAME.....: AMMONIUM PERSULFATE,
AMMONIUM PERSULFATE PLUS,
AMMONIUM PERSULFATE COARSE
SYNONYMS.....: AMMONIUM PEROXYDISULFATE
INFORMATION PROVIDED BY...: ACTIVE OXIDANT DIVISION
FMC CORPORATION
1735 MARKET STREET
PHILADELPHIA, PA. 19103
(215) 299-6000

EMERGENCY PHONE NUMBERS

CHEMTREC.....: (800) 424-9300
MEDICAL.....: (303) 595-9048 CALL COLLECT
PLANT/OTHER.....: (716) 879-0400

2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS # AND COMPONENTS.....: MATERIAL/COMPONENT: AMMONIUM PERSULFATE
PERCENT.....: 99%
CAS #: 7727-54-0

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW.....: OXIDIZER: DECOMPOSES IN STORAGE UNDER
CONDITIONS OF EXCESSIVE HEAT AND/OR MOISTURE
(WATER/WATER VAPOR) CAUSING RELEASE OF OXIDES OF
SULFUR AND OXYGEN THAT SUPPORTS COMBUSTION.
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.
INHALATION.....: REMOVE TO FRESH AIR. IF BREATHING DIFFICULTY
OR DISCOMFORT OCCURS AND PERSISTS, CONTACT A
MEDICAL DOCTOR.
INGESTION.....: RINSE MOUTH WITH WATER. DO NOT INDUCE VOMITING.
NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS
PERSON. SEE A MEDICAL DOCTOR.
NOTES TO PHYSICIAN.....: AMMONIUM PERSULFATE 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

EXTINGUISHING MEDIA.....: DELUGE WITH WATER
 SPECIAL FIREFIGHTING.....: DO NOT USE CARBON DIOXIDE OR OTHER GAS-FILLED
 PROCEDURES FIRE EXTINGUISHERS; THEY WILL HAVE NO EFFECT ON
 DECOMPOSING PERSULFATES.
 WEAR FULL PROTECTIVE CLOTHING AND SELF-CONTAINED
 BREATHING APPARATUS.
 DEGREE OF FIRE AND.....: PRODUCT IS NON-COMBUSTIBLE. ON DECOMPOSITION
 EXPLOSION HAZARD RELEASES OXYGEN WHICH MAY INTENSIFY FIRE.
 PRESENCE OF WATER ACCELERATES DECOMPOSITION.
 HAZARDOUS DECOMPOSITION...: OXYGEN THAT SUPPORTS COMBUSTION AND OXIDES OF
 PRODUCTS SULFUR.

6. ACCIDENTAL RELEASE MEASURES

PROCEDURE FOR RELEASE....: MATERIAL SHOULD BE PUT INTO AN APPROVED DOT
 OR SPILL CONTAINER, DILUTED WITH A LARGE QUANTITY OF
 WATER AND DISPOSED OF 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.
 VENTILATION.....: PROVIDE MECHANICAL GENERAL AND/OR LOCAL EXHAUST
 VENTILATION TO PREVENT RELEASE OF DUST INTO THE
 WORK ENVIRONMENT. SPILLS SHOULD BE COLLECTED
 INTO SUITABLE CONTAINERS TO PREVENT DISPERSION
 INTO THE AIR.
 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CONTROL MEASURES.....: 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.

RECOMMENDED PERSONAL
 PROTECTIVE EQUIPMENT

RESPIRATORY.....: USE APPROVED DUST RESPIRATOR WHEN AIRBORNE DUST
 IS EXPECTED.
 EYES.....: USE CUP TYPE CHEMICAL GOGGLES. FULL FACE SHIELD
 MAY BE USED.
 GLOVES.....: RUBBER OR NEOPRENE GLOVES.
 SPECIAL CLOTHING...: NORMAL WORK CLOTHES.
 AND EQUIPMENT
 FOOTWEAR.....: RUBBER OR NEOPRENE FOOTWEAR.

9. PHYSICAL AND CHEMICAL PROPERTIES

MELTING/FREEZING POINT...: DECOMPOSES
 BOILING POINT.....: NOT APPLICABLE

VAPOR PRESSURE.....: NOT APPLICABLE
 VAPOR DENSITY (AIR=1)....: NOT APPLICABLE
 ROOM TEMPERATURE.....: WHITE CRYSTALS
 APPEARANCE AND STATE
 ODOR.....: NONE
 SPECIFIC GRAVITY (H2O=1)..: 1.98
 SOLUBILITY IN H2O % BY WT: 51% @ 25 C
 % VOLATILES.....: NOT APPLICABLE
 EVAPORATION RATE.....: NOT APPLICABLE
 (BUTYL ACETATE=1)
 PH (AS IS).....: NOT APPLICABLE
 PH (1% SOLUTION).....: TYPICALLY 4-6
 ODOR THRESHOLD.....: NOT AVAILABLE
 DENSITY (G/ML).....: NOT AVAILABLE
 PARTITION COEFFICIENT....: NOT AVAILABLE
 N-OCTANOL/WATER
 FLASH POINT.....: NON-COMBUSTIBLE
 AUTOIGNITION TEMPERATURE.: NON-COMBUSTIBLE
 FLAMMABLE LIMITS UPPER...: NON-COMBUSTIBLE
 (AIR) LOWER...: NON-COMBUSTIBLE
 EXPLOSIVE PROPERTIES.....: NOT APPLICABLE
 OXIDIZING PROPERTIES.....: OXIDIZER
 SOLUBILITY.....: NO DATA AVAILABLE
 - FAT SOLUBILITY
 (SOLVENT - OIL)

10. STABILITY AND REACTIVITY

STABILITY.....: STABLE (BECOMES UNSTABLE IN PRESENCE OF
 MOISTURE).
 HAZARDOUS POLYMERIZATION.: WILL NOT OCCUR
 CONDITIONS TO AVOID.....: HEAT, MOISTURE, REDUCING AGENTS.
 MATERIALS TO AVOID.....: HEAVY METALS, REDUCING AGENTS AND MOISTURE
 MAJOR CONTAMINANTS THAT...: ACIDS, ALKALIS, HALIDES, (FLUORIDES, CHLORIDES
 CONTRIBUTE TO INSTABILITY BROMIDES), COMBUSTIBLE MATERIALS, HEAVY METALS
 OXIDIZABLE MATERIALS.
 INCOMPATIBILITY.....: ACIDS, ALKALIS, HALIDES, (FLUORIDES, CHLORIDES
 BROMIDES), COMBUSTIBLE MATERIALS, HEAVY METALS
 OXIDIZABLE MATERIALS.
 HAZARDOUS DECOMPOSITION...: OXYGEN THAT SUPPORTS COMBUSTION AND OXIDES OF
 PRODUCTS SULFUR AND NITROGEN.
 SENSITIVITY TO MECH.....: NO DATA AVAILABLE
 IMPACT
 SENSITIVITY TO STATIC....: NO DATA AVAILABLE
 DISCHARGE

11. TOXICOLOGICAL INFORMATION

EYE CONTACT.....: MINIMALLY IRRITATING TO UNWASHED
 EYES; PRACTICALLY NON-IRRITATING
 TO WASHED EYES. (RABBIT)
 FMC I87-968
 SKIN CONTACT.....: NON-IRRITATING (RABBIT)
 MAY BE SENSITIZER TO ALLERGIC PERSONS.
 FMC I87-980
 SKIN ABSORPTION.....: NO SIGNIFICANT HAZARD.
 LD50 2000 MG/KG (RABBIT)
 FMC I91-1200
 INHALATION.....: NO SIGNIFICANT HAZARD
 4 HR. LC50 > 2.95 MG/L (RAT)
 MAXIMUM ATTAINABLE DUST
 CONCENTRATION.
 FMC I87-969
 INGESTION.....: LD50 = 495 MG/KG (FEMALE RAT)
 FMC I91-1201
 ACUTE EFFECTS FROM.....: DUST MAY BE HARMFUL AND IRRITATING.

OVEREXPOSURE

AMMONIUM PERSULFATE HAS LOW DERMAL TOXICITY AND IS MODERATELY TOXIC WHEN INGESTED. PRODUCT IS MINIMALLY IRRITATING TO THE EYES AND IS NON-IRRITATING TO THE SKIN.

CHRONIC EFFECTS FROM.....: SENSITIVE PERSONS MAY DEVELOP DERMATITIS AND OVEREXPOSURE ASTHMA (RESPIRATION 38:144 1979).

(EFFECTS CONSIDERED INCLUDE:

- SENSITIVITIES, CARCINOGENICITY, TERATOGENICITY, MUTAGENICITY, SYNERGISTIC PRODUCTS, AND ANY MEDICAL CONDITIONS GENERALLY RECOGNIZED AS BEING AGGRAVATED BY EXPOSURE.)

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE.....: BIODEGRADABILITY DOES NOT APPLY TO INORGANIC SUBSTANCES. NO OTHER FATE DATA AVAILABLE.

ENVIRONMENTAL EFFECTS.....: BLUEGILL SUNFISH 96-HR LC50 = 103 MG/L (FMC I92-1246) RAINBOW TROUT 96-HR LC50 = 76.3 MG/L (FMC I92-1247) DAPHNIA 48-HR LC50 = 120 MG/L (FMC I92-1248) GRASS SHRIMP 96-HR LC50 = 391 MG/L (FMC I92-1249)

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD.....: DILUTE WITH PLENTY OF WATER AND DISPOSE VIA TREATMENT SYSTEM IN ACCORDANCE WITH APPROPRIATE LOCAL AND GOVERNMENTAL REGULATIONS.

14. TRANSPORT INFORMATION

DOT PROPER SHIPPING NAME.: AMMONIUM PERSULFATE IATA.....: AMMONIUM PERSULPHATE IMDG.....: AMMONIUM PERSULPHATE DOT CLASSIFICATION.....: 5.1 (OXIDIZER) DOT LABELS.....: OXIDIZER DOT MARKING.....: AMMONIUM PERSULFATE, UN 1444 DOT PLACARD.....: 5.1 (OXIDIZER) UN NUMBER.....: UN 1444 HAZARDOUS SUBSTANCE/RQ...: NOT APPLICABLE 49 STCC NUMBER.....: 4918733 PRECAUTIONS TO BE TAKEN...: PROTECT FROM PHYSICAL DAMAGE. DO NO STORE IN TRANSPORTATION NEAR ACIDS, MOISTURE OR HEAT. OTHER SHIPPING.....: 225 LB. FIBER DRUM DOT 21C250 W/ POLYLINER INFORMATION 55 LB. POLY BAG DOT 44P 1000-2000 LB. IBC DOT EXEMPTION E8489

15. REGULATORY INFORMATION

OSHA

EXPOSURE LIMITS

SUBSTANCE(S).....: AMMONIUM PERSULFATE OSHA PEL-TWA.....: NOT APPLICABLE STEL.....: NOT APPLICABLE CEILING.....: NOT APPLICABLE SKIN DESIGNATION.: NOT APPLICABLE ACGIH TLV-TWA.....: 0.1 MG/M(3)

STEL.....: NOT APPLICABLE
 CEILING.....: NOT APPLICABLE
 SKIN DESIGNATION.: NOT APPLICABLE
 TARGET ORGAN EFFECTS.....: SENSORY IRRITATION - EYES, NOSE, THROAT AND LUNGS
 CARCINOGENIC POTENTIAL....: AMMONIUM PERSULFATE
 REGULATED BY OSHA.....: NO
 LISTED ON NTP REPORT....: NO
 IARC GROUP 1, 2A, 2B....: NO
 U.S. EPA REQUIREMENTS
 RELEASE REPORTING
 CERCLA (40 CFR 302).....: NOT LISTED
 LISTED SUBSTANCE(S).....: NO
 RQ.....: NOT APPLICABLE
 CATEGORY.....: NOT APPLICABLE
 RCRA WASTE NO.....: NOT APPLICABLE
 UNLISTED SUBSTANCE(S)...: AMONIUM PERSULFATE
 RQ.....: 100 LBS.
 CHARACTERISTIC....: IGNITABILITY
 RCRA WASTE NO.....: D001
 SARA TITLE III SEC 313
 (40 CFR 372).....: NOT LISTED
 LISTED TOXIC CHEMICAL...: NOT LISTED
 INVENTORY REPORTING
 SARA TITLE III SEC 311/312
 (40 CFR 370)
 SUBSTANCE(S).....: AMMONIUM PERSULFATE
 HAZARD CATEGORY.....: FIRE HAZARD
 IMMEDIATE (ACUTE) HEALTH HAZARD
 PLANNING THRESHOLD.....: 10,000 LBS.
 EMERGENCY PLANNING
 SARA TITLE III SEC 302-303
 (40 CFR 355)
 LISTED SUBSTANCE(S)....: NOT APPLICABLE
 RQ.....: NOT APPLICABLE
 PLANNING THRESHOLD.....: NOT APPLICABLE
 U.S. TSCA STATUS.....: LISTED
 CANADA
 INGREDIENT DISCLOSURE LIST
 SUBSTANCE(S).....: NO
 CONTROLLED PRODUCT.....: YES
 HAZARD SYMBOLS.....: OXIDIZING, MATERIALS CAUSING OTHER TOXIC EFFECTS
 CLASS & DIVISION.....: CLASS C, CLASS D DIV.2, SUBDIV. B
 PRODUCT IDENTIFICATION NO: 1444
 DOMESTIC SUBSTANCE LIST.: LISTED
 CEPA PRIORITY LIST.....: NOT LISTED
 CARCINOGENICITY
 ACGIH APPENDIX A.....: NOT LISTED
 A1 - CONFIRMED HUMAN...: NOT APPLICABLE
 A1 - SUSPECTED HUMAN...: NOT APPLICABLE
 IARC GROUP 1 OR 2.....: NO
 LABEL LANGUAGE (US/CANADA)
 HEALTH.....: AIRBORNE DUST MAY BE IRRITATING TO EYES, NOSE, THROAT AND SKIN UPON CONTACT. CONTINUOUS CONTACT MAY IRRITATE SKIN. INHALATION OF AIRBORNE DUST AT HIGH LEVEL MAY PRODUCE SHORTNESS OF BREATH IN SENSITIVE PERSONS.
 PHYSICAL.....: DECOMPOSES IN STORAGE UNDER CONDITIONS OF EXCESSIVE HEAT AND/OR MOISTURE (WATER, WATER VAPOR) CAUSING RELEASE OR OXIDES OF SULFUR AND OXYGEN THAT SUPPORTS COMBUSTION. REACTS WITH ACIDS, ALKALIS, HALIDES, COMBUSTIBLES AND HEAVY METALS TO RELEASE OXYGEN.
 HANDLING AND STORAGE...: STORE (UNOPENED) IN A COOL, CLEAN, DRY PLACE AND 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. AVOID PROLONGED OR REPEATED SKIN CONTACT. WEAR SUITABLE PROTECTIVE CLOTHING. IN CASE OF FIRE OR DECOMPOSITION (SMOKING) USE SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE, ACID RESISTANT CLOTHING AND DELUGE WITH PLENTY OF WATER TO CONTROL DECOMPOSITION. FOR STORAGE, REFER TO NFPA BULLETIN 43A ON THE STORAGE OF LIQUID AND SOLID OXIDIZING MATERIALS.

FIRST AID.....: IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. SEE A PHYSICIAN.

STATE REGULATIONS.....: PROPOSITION 65 - CALIFORNIA SAFE DRINKING WATER AND TOXICS ENFORCEMENT ACT OF 1986 REQUIRES THAT THE GOVERNMENT OF CALIFORNIA DEVELOP A LIST OF CARCINOGENS (A) AND REPRODUCTIVE TOXINS (B). NO PERSONS DOING BUSINESS SHALL KNOWINGLY EXPOSE ANY INDIVIDUAL TO A CHEMICAL KNOWN ON THIS LIST. FMC'S AMMONIUM PERSULFATE CONTAINS THE INDICATED CONCENTRATION(S) OF CHEMICALS THAT ARE LISTED.
ARSENIC (A) EQUAL TO/LESS THAN 1 PPM
CHROMIUM (A) EQUAL TO/LESS THAN 0.05 PPM
LEAD (B) EQUAL TO/LESS THAN 1 PPM

16. OTHER INFORMATION

PRODUCT USES.....: POLYMERIZATION INITIATOR IN POLYMER CHEMISTRY. ETCHANT AND CLEANER IN MANUFACTURE OF PRINTED CIRCUIT BOARDS. BOOSTER IN HAIR BLEACHING FORMULATIONS IN COSMETICS.

NFPA 704

HEALTH.....: 1
FLAMMABILITY.....: 0
REACTIVITY.....: 1
SPECIAL HAZARD.....: OX
(DEGREE OF HAZARD
0 = NO HAZARD
4 = SEVERE HAZARD)

THE CONTENTS AND FORMAT OF THIS MSDS ARE IN ACCORDANCE WITH OSHA HAZARD COMMUNICATION STANDARD AND CANADA'S WORKPLACE HAZARDOUS MATERIAL INFORMATION SYSTEM (WHMIS)

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* * * E N D O F M S D S * * *