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For Emergency Assistance involving chemicals call - CHEMTREC (800) 424-9300

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The Version Date for this MSDS is : 03/03/2004

PRODUCT NAME:
OXONE(R) MONOPERSULFATE COMPOUND - PS16

MSDS #: DU10444C

01 CHEMICAL PRODUCT/COMPANY IDENTIFICATION
MATERIAL IDENTIFICATION

"OXONE" IS A REGISTERED TRADEMARK OF DUPONT.

CAS NUMBER : 70693-62-8
CAS NAME : POTASSIUM HYDROGEN PEROXYMONOSULFATE
SULFATE
GRADE : TECHNICAL AND CG (COARSE GRANULAR)

TRADENAMES AND SYNONYMS

POTASSIUM MONOPERSULFATE
POTASSIUM PEROXYMONOSULFATE

COMPANY IDENTIFICATION

MANUFACTURER/DISTRIBUTOR
DUPONT
1007 MARKET STREET
WILMINGTON, DE 19898

PHONE NUMBERS

PRODUCT INFORMATION : 1-800-441-7515
TRANSPORT EMERGENCY : CHEMTREC: 1-800-424-9300
MEDICAL EMERGENCY : 1-800-441-3637

02 COMPOSITION/INFORMATION ON INGREDIENTS
COMPONENTS

MATERIAL	CAS NUMBER	%
POTASSIUM PEROXYMONOSULFATE	10058-23-8	43

POTASSIUM BISULFATE	7646-93-7	23
POTASSIUM SULFATE	7778-80-5	29
POTASSIUM PEROXYDISULFATE	7727-21-1	3
MAGNESIUM CARBONATE	546-93-0	2

03 HAZARDS IDENTIFICATION
 POTENTIAL HEALTH EFFECTS

OXONE MONOPERSULFATE IS A SKIN AND EYE CORROSIVE, AND A NOSE AND THROAT IRRITANT. MAY CAUSE ALLERGIC SKIN REACTIONS IN SENSITIVE INDIVIDUALS. INGESTION MAY CAUSE INFLAMMATION AND DAMAGE TO THE LINING OF THE STOMACH, RESULTING IN BLEEDING.

HUMAN HEALTH EFFECTS:

SKIN CONTACT WITH AQUEOUS SOLUTIONS OR THE DRY POWDER UPON CONTACT WITH MOISTURE OR PERSPIRATION MAY CAUSE SKIN BURNS OR ULCERATION; TEMPORARY BODY HAIR LOSS MAY OCCUR IN CONTACTED AREAS. SKIN CONTACT WITH THE PRODUCT MAY CAUSE ALLERGIC SKIN REACTIONS IN SENSITIVE INDIVIDUALS. HUMAN PATCH TESTS WITH THE PRODUCT DILUTED IN WATER AT CONCENTRATIONS UP TO 150 PPM DID NOT CAUSE ALLERGIC SKIN REACTION.

EYE CONTACT MAY CAUSE EYE CORROSION OR ULCERATION. SEVERE EYE DAMAGE MAY RESULT IF NOT IMMEDIATELY TREATED (SEE FIRST AID MEASURES).

INHALATION MAY CAUSE NOSE BLEEDS AND IRRITATION OF THE UPPER RESPIRATORY PASSAGES WITH COUGHING AND DISCOMFORT. INGESTION MAY CAUSE GASTRITIS POSSIBLY PROGRESSING TO NECROSIS OR HEMORRHAGE.

INDIVIDUALS WITH PREEXISTING DISEASES OF THE SKIN OR GASTROINTESTINAL TRACT MAY HAVE INCREASED SUSCEPTIBILITY TO THE TOXICITY OF EXCESSIVE EXPOSURES.

CARCINOGENICITY INFORMATION

NONE OF THE COMPONENTS PRESENT IN THIS MATERIAL AT CONCENTRATIONS EQUAL TO OR GREATER THAN 0.1% ARE LISTED BY IARC, NTP, OSHA OR ACGIH AS A CARCINOGEN.

04 FIRST AID MEASURES
 FIRST AID

INHALATION

IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. CALL A PHYSICIAN.

SKIN CONTACT

IN CASE OF CONTACT, IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES, WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. CALL A PHYSICIAN. WASH CONTAMINATED CLOTHING BEFORE REUSE.

EYE CONTACT

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. CALL A PHYSICIAN.

INGESTION

IF SWALLOWED, DO NOT INDUCE VOMITING. IMMEDIATELY GIVE 2 GLASSES OF WATER. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. CALL A PHYSICIAN.

05 FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

WILL NOT BURN.

FIRE AND EXPLOSION HAZARDS:

IMPROPER STORAGE OF LARGE MASSES OF "OXONE" CAN TRAP HEAT AND LEAD TO IGNITION OF COMBUSTIBLES (SEE SECTION ON "HANDLING AND STORAGE"). GRINDING OR INTENSIVE MIXING MAY CAUSE DECOMPOSITION WITH LIBERATION OF HEAT AND OXYGEN; IGNITION OF OXIDIZABLE MATERIAL IF PRESENT MAY OCCUR.

EXTINGUISHING MEDIA

WATER.

DO NOT USE CARBON DIOXIDE OR OTHER GAS-FILLED FIRE EXTINGUISHERS; THEY WILL HAVE NO EFFECT ON DECOMPOSING PERSULFATES.

FIRE FIGHTING INSTRUCTIONS

WILL RELEASE OXYGEN WHEN HEATED, INTENSIFYING A FIRE. ACIDIC MIST MAY BE PRESENT; SELF CONTAINED BREATHING APPARATUS SHOULD BE USED.

06 ACCIDENTAL RELEASE MEASURES

SAFEGUARDS (PERSONNEL)

NOTE: REVIEW FIRE FIGHTING MEASURES AND HANDLING (PERSONNEL) SECTIONS BEFORE PROCEEDING WITH CLEAN-UP. USE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT DURING CLEAN-UP.

ACCIDENTAL RELEASE MEASURES

SWEEP UP SOLID. FLUSH LIQUID SPILLS WITH LOW PRESSURE WATER. (SEE DISPOSAL CONSIDERATIONS)

07 HANDLING AND STORAGE

HANDLING (PERSONNEL)

DO NOT INHALE. DO NOT GET IN EYES, ON SKIN OR CLOTHING. WASH THOROUGHLY AFTER HANDLING. WASH CLOTHING AFTER USE.

STORAGE

STORE SOLID OXONE IN A COOL, DRY, WELL-VENTILATED AREA AWAY FROM HEAT SOURCES SUCH AS LIGHT FIXTURES OR SPACE HEATERS.

REPLACE THE LID ON THE PLASTIC PAILS WHEN THEY ARE NOT IN USE TO PREVENT CONTAMINATION AND EXTEND SHELF LIFE.

PALLETS OF 25 KG. BAGS CAN BE STACKED. LEAVE OPEN SPACE ON ALL SIDES OF EACH PALLET TO PROVIDE VENTILATION. SEE LOCAL FIRE CODES FOR ALLOWABLE LIMITS. BULK BAGS SHOULD BE STORED ON PALLETS; IF STACKED USE PYRAMID STYLE, NO MORE THAN 2 PALLETS HIGH.

CLOSELY STACKED BAGS SHOULD NOT EXCEED A 4 FT. (1.2M) CUBE. KEEP PACKAGES DRY. DO NOT STORE WITH COMBUSTIBLE MATERIALS OR WITH INCOMPATIBLES (SEE "INCOMPATIBILITY WITH OTHER MATERIALS").

08 EXPOSURE CONTROLS/PERSONAL PROTECTION ENGINEERING CONTROLS

USE SUFFICIENT VENTILATION TO KEEP EMPLOYEE EXPOSURE BELOW RECOMMENDED LIMITS.

PERSONAL PROTECTIVE EQUIPMENT

FOR EXPOSURE TO DRY MATERIAL:

EYE/FACE PROTECTION:

WEAR SAFETY GLASSES OR COVERALL CHEMICAL SPLASH GOGGLES.

RESPIRATORS:

A NIOSH APPROVED AIR-PURIFYING RESPIRATOR WITH AN APPROPRIATE PARTICULATE CARTRIDGE OR CANISTER MAY BE PERMISSIBLE UNDER CERTAIN CIRCUMSTANCES WHERE AIRBORNE CONCENTRATIONS ARE EXPECTED TO EXCEED EXPOSURE LIMITS. PROTECTION PROVIDED BY AIR-PURIFYING RESPIRATORS IS LIMITED. USE A POSITIVE PRESSURE AIR-SUPPLIED RESPIRATOR IF THERE IS ANY POTENTIAL FOR AN UNCONTROLLED RELEASE, EXPOSURE LEVELS ARE NOT KNOWN, OR ANY OTHER CIRCUMSTANCES WHERE AIR-PURIFYING RESPIRATORS MAY NOT PROVIDE ADEQUATE PROTECTION.

PROTECTIVE CLOTHING:

WHERE THERE IS POTENTIAL FOR SKIN CONTACT HAVE AVAILABLE AND WEAR AS APPROPRIATE IMPERVIOUS GLOVES, APRON, PANTS AND JACKET.

FOR EXPOSURE TO SOLUTIONS:

EYE/FACE PROTECTION:

WEAR COVERALL CHEMICAL SPLASH GOGGLES. ADDITIONALLY WEAR A FACE SHIELD WHERE THE POSSIBILITY EXISTS FOR FACE CONTACT DUE TO SPLASHING OR SPRAYING OF MATERIAL.

RESPIRATORS:

A NIOSH APPROVED AIR-PURIFYING RESPIRATOR WITH AN APPROPRIATE PARTICULATE CARTRIDGE OR CANISTER MAY BE PERMISSIBLE UNDER CERTAIN CIRCUMSTANCES WHERE AIRBORNE

CONCENTRATIONS ARE EXPECTED TO EXCEED EXPOSURE LIMITS. PROTECTION PROVIDED BY AIR-PURIFYING RESPIRATORS IS LIMITED. USE A POSITIVE PRESSURE AIR-SUPPLIED RESPIRATOR IF THERE IS ANY POTENTIAL FOR AN UNCONTROLLED RELEASE, EXPOSURE LEVELS ARE NOT KNOWN, OR ANY OTHER CIRCUMSTANCES WHERE AIR-PURIFYING RESPIRATORS MAY NOT PROVIDE ADEQUATE PROTECTION.

PROTECTIVE CLOTHING:

WHERE THERE IS POTENTIAL FOR SKIN CONTACT, WEAR IMPERVIOUS CLOTHING SUCH AS GLOVES, APRON, BOOTS OR WHOLE BODYSUIT.

EXPOSURE GUIDELINES

EXPOSURE LIMITS

OXONE(R) MONOPERSULFATE COMPOUND - PS16
PEL (OSHA) : PARTICULATES (NOT OTHERWISE REGULATED)
15 MG/M3, 8 HR. TWA, TOTAL DUST
5 MG/M3, 8 HR. TWA, RESPIRABLE DUST
TLV (ACGIH) : NONE ESTABLISHED
AEL (DUPONT) : 1 MG/M3, TOTAL DUST, 8 & 12 HR. TWA

OTHER APPLICABLE EXPOSURE LIMITS

POTASSIUM SULFATE
PEL (OSHA) : NONE ESTABLISHED
TLV (ACGIH) : NONE ESTABLISHED
AEL (DUPONT) : 10 MG/M3, 8 HR. TWA

POTASSIUM PEROXYDISULFATE
TLV (ACGIH) : 0.1 MG/M3, 8 HR. TWA

MAGNESIUM CARBONATE
PEL (OSHA) : 15 MG/M3, TOTAL DUST, 8 HR. TWA
5 MG/M3, RESPIRABLE DUST, 8 HR. TWA
TLV (ACGIH) : 10 MG/M3, TOTAL DUST, 8 HR. TWA
AEL (DUPONT) : NONE ESTABLISHED

AEL IS DUPONT'S ACCEPTABLE EXPOSURE LIMIT. WHERE GOVERNMENTALLY IMPOSED OCCUPATIONAL EXPOSURE LIMITS WHICH ARE LOWER THAN THE AEL ARE IN EFFECT, SUCH LIMITS SHALL TAKE PRECEDENCE.

09 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA

BOILING POINT : @ 760 MM HG DECOMPOSES
VAPOR PRESSURE : NIL
VAPOR DENSITY : NOT VOLATILE
MELTING POINT : DECOMPOSES
EVAPORATION RATE : (BUTYL ACETATE = 1)
NOT VOLATILE
SOLUBILITY IN WATER : 25.6 WT% @ 20 C (68 F)
PH : 1% SOLUTION = 2.3; 3% SOLUTION = 2.0 10%
SOLUTION = 1.6
ODOR : ODORLESS
FORM : GRANULAR; FREE FLOWING SOLID
COLOR : WHITE
SPECIFIC GRAVITY : 1.1-1.4

10 STABILITY AND REACTIVITY

CHEMICAL STABILITY

STABLE WHEN HANDLED AND STORED AS INDICATED.

INCOMPATIBILITY WITH OTHER MATERIALS

THE MIXTURE OF OXONE(R) WITH COMPOUNDS CONTAINING HALIDES OR ACTIVE HALOGENS (BROMINE, CHLORINE, IODINE) CAN CAUSE THE RELEASE OF THE RESPECTIVE HALOGEN GAS, IF MOISTURE IS PRESENT. AVOID THESE GASES (BROMINE AND CHLORINE) BECAUSE THEY ARE VERY IRRITATING TO EYES AND LUNGS EVEN AT LOW CONCENTRATIONS. NEVER MIX CONCENTRATED OXONE(R) WITH DRY OR CONCENTRATED BROMINE-CONTAINING CHEMICALS, SUCH AS BROMATES, BROMIDES, OR ANY CONCENTRATED BROMINE POOL CHEMICALS. MIXING CONCENTRATED OXONE(R) WITH DRY OR CONCENTRATED CHLORINE-CONTAINING CHEMICALS, SUCH AS HYPOCHLORITES ("HYPO" FOR POOLS), SODIUM DICHLOROISOCYANURATE (DICHLOR), SODIUM TRIISOCYANURATE (TRICHLOR) OR WITH SODIUM CHLORIDE (SALT), MAY CAUSE THE RELEASE OF CHLORINE GAS.

MIXING WITH CYANIDES CAN CAUSE RELEASE OF HYDROGEN CYANIDE GAS. MIXING WITH HEAVY METAL SALTS SUCH AS THOSE OF COBALT, NICKEL, COPPER, OR MANGANESE CAN CAUSE DECOMPOSITION WITH RELEASE OF OXYGEN AND HEAT.

DECOMPOSITION

DECOMPOSES WHEN HEATED OR DAMPENED, RELEASING OXYGEN AND HEAT OF DECOMPOSITION.

POLYMERIZATION

POLYMERIZATION WILL NOT OCCUR.

11 TOXICOLOGICAL INFORMATION

ANIMAL DATA

OXONE MONOPERSULFATE:

INHALATION 4 HOUR LC50: > 5 MG/L IN RATS
SKIN ABSORPTION LD50: > 11,000 MG/KG IN RABBITS
ORAL LD50: 200 - 2000 MG/KG IN RATS

OXONE MONOPERSULFATE IS A SEVERE SKIN AND EYE IRRITANT, BUT IS NOT A SKIN SENSITIZER IN ANIMALS.

SINGLE EXPOSURES BY INHALATION TO OXONE MONOPERSULFATE PRODUCED NONSPECIFIC EFFECTS SUCH AS WEIGHT LOSS AND SLIGHT RESPIRATORY IRRITATION. REPEATED INHALATION EXPOSURES PRODUCED EYE IRRITATION AND REVERSIBLE CORNEAL DAMAGE.

ADMINISTRATION OF LARGE SINGLE INGESTION DOSES OF OXONE MONOPERSULFATE PRODUCED NONSPECIFIC EFFECTS SUCH AS WEIGHT LOSS AND IRRITATION, AS WELL AS GASTRIC ULCERATION, NECROSIS AND HEMORRHAGE. REPEATED ADMINISTRATION OF OXONE MONOPERSULFATE AT A COMBINED DOSAGE OF 1000/600 MG/KG FOR 13 WEEKS CAUSED PATHOLOGICAL CHANGES OF THE STOMACH, BODY WEIGHT LOSS, GASPING, NOISY RESPIRATION, AND HUNCHED POSTURE. THERE WERE NO TOXIC EFFECTS NOTED AT 20 OR 200

MG/KG AND THE NO-OBSERVED-ADVERSE-EFFECT-LEVEL (NOAEL) IS CONSIDERED TO BE 200 MG/KG.

TESTS FOR CARCINOGENIC ACTIVITY OR REPRODUCTIVE TOXICITY HAVE NOT BEEN PERFORMED. A RANGE-FINDING DEVELOPMENTAL TOXICITY STUDY SHOWED DEVELOPMENTAL EFFECTS ONLY AT EXPOSURE LEVELS PRODUCING OTHER TOXIC EFFECTS IN THE ADULT ANIMAL.

OXONE MONOPERSULFATE DID NOT PRODUCE GENETIC DAMAGE IN BACTERIAL CELL CULTURES. OXONE MONOPERSULFATE DID PRODUCE GENETIC DAMAGE IN MAMMALIAN CELL CULTURES. IT DID NOT PRODUCE GENETIC DAMAGE IN TESTS ON ANIMALS, BUT SHOWED SOME EVIDENCE OF BONE MARROW CELL TOXICITY IN FEMALE MICE.

12 ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

AQUATIC TOXICITY

96 HOUR LC50 - RAINBOW TROUT: 53 MG/L
48 HOUR EC50 - DAPHNIA MAGNA: 3.5 MG/L

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

COMPLY WITH FEDERAL, STATE, AND LOCAL REGULATIONS. SOLUTIONS GREATER THAN 3% BY WEIGHT HAVE A PH < 2.0, AND MAY BE A RCRA HAZARDOUS WASTE UPON DISPOSAL DUE TO THE ACIDIC PH CHARACTERISTIC OF THE SOLUTION. IF APPROVED, FLUSH TO SEWER OR WASTE TREATMENT PLANT. LARGE QUANTITIES SHOULD BE NEUTRALIZED WITH SODA ASH.

14 TRANSPORTATION INFORMATION

SHIPPING INFORMATION

DOT/IMO
PROPER SHIPPING NAME : CORROSIVE SOLID, ACIDIC, INORGANIC,
N.O.S.
(MONOPERSULFATE COMPOUND)
HAZARD CLASS : 8
UN NO. : 3260
DOT/IMO LABEL : CORROSIVE
PACKING GROUP : II

SHIPPING CONTAINERS:

MULTIWALL BAGS
FIBER PACK DRUMS
BULK BAGS

15 REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

TSCA INVENTORY STATUS : REPORTED/INCLUDED.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

ACUTE : YES
CHRONIC : NO
FIRE : NO

REACTIVITY : NO
PRESSURE : NO

LISTS:

SARA EXTREMELY HAZARDOUS SUBSTANCE - NO
CERCLA HAZARDOUS MATERIAL - NO
SARA TOXIC CHEMICAL - NO

CANADA PEST CONTROL PRODUCTS ACT

REGISTRATION NUMBER 23137

CANADIAN REGULATIONS

CLASS C OXIDIZING MATERIAL

CLASS D DIVISION 2 SUBDIVISION B - TOXIC MATERIAL. SKIN OR EYE
IRRITANT.

CLASS E CORROSIVE MATERIAL

16 OTHER INFORMATION

NFPA, NPCA-HMIS

NPCA-HMIS RATING

HEALTH : 3
FLAMMABILITY : 0
REACTIVITY : 1

PERSONAL PROTECTION RATING TO BE SUPPLIED BY USER DEPENDING ON USE
CONDITIONS.

ADDITIONAL INFORMATION

FOR FURTHER INFORMATION, SEE DUPONT "OXONE" MONOPERSULFATE
COMPOUND DATA SHEET.

RESPONSIBLE FOR MSDS : MSDS COORDINATOR
> : DUPONT CHEMICAL SOLUTIONS ENTERPRISE
ADDRESS : WILMINGTON, DE 19898
TELEPHONE : (800) 441-7515

INDICATES UPDATED SECTION.

END OF MSDS

For Additional Information:

Contact: MSDS Coordinator - Univar USA

During business hours, Pacific Time - (425) 889-3400

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END OF MSDS