

DATE: 07/31/93

ACCT: 888235-01

PAGE: 1

INDEX: 05932115924

CAT NO: E1244

PO NBR: UND 40810

\*\*ETHYL ACETATE\*\*  
\*\*ETHYL ACETATE\*\*  
\*\*ETHYL ACETATE\*\*

## MATERIAL SAFETY DATA SHEET

FISHER SCIENTIFIC  
CHEMICAL DIVISION  
1 REAGENT LANE  
FAIR LAWN NJ 07410  
(201) 796-7100EMERGENCY NUMBER: (201) 796-7100  
CHEMTREC ASSISTANCE: (800) 424-9300

THIS INFORMATION IS BELIEVED TO BE ACCURATE AND REPRESENTS THE BEST INFORMATION CURRENTLY AVAILABLE TO US. HOWEVER, WE MAKE NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO SUCH INFORMATION, AND WE ASSUME NO LIABILITY RESULTING FROM ITS USE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION FOR THEIR PARTICULAR PURPOSES.

## SUBSTANCE IDENTIFICATION

SUBSTANCE: \*\*ETHYL ACETATE\*\* CAS-NUMBER 141-78-6

TRADE NAMES/SYNONYMS:  
ACETIC ACID ETHYL ESTER; ACETIC ETHER; ACETIDIN; ACETOXYETHANE;  
ETHYL ETHANOATE; VINEGAR NAPHTHA; ACETIC ESTER; RCRA U112; STCC 4909160;  
EIN 1173; E124; E130; E145; E189; E145S; E191; E195; E196; BP1125; E195SK;  
C4H8O2; ACC08750

CHEMICAL FAMILY:  
ESTER, CARBOXYLIC, ALIPHATIC

MOLECULAR FORMULA: C-H3-C-O2-C2-HS

MOLECULAR WEIGHT: 88.11

CECLA RATINGS (SCALE 0-3): HEALTH=3 FIRE=3 REACTIVITY=0 PERSISTENCE=0  
NFPA RATINGS (SCALE 0-4): HEALTH=1 FIRE=3 REACTIVITY=0

## COMPONENTS AND CONTAMINANTS

COMPONENT: ETHYL ACETATE PERCENT: 100.0  
CAS# 141-78-6

OTHER CONTAMINANTS: NONE

EXPOSURE LIMITS:  
ETHYL ACETATE:  
400 PPM (1440 MG/M3) OSHA TWA  
400 PPM (1440 MG/M3) ACGIH TWA  
400 PPM (1440 MG/M3) NIOSH RECOMMENDED TWA  
400 PPM (1440 MG/M3) DFG MAK TWA;  
800 PPM (2880 MG/M3) DFG MAK 5 MINUTE PEAK, MOMENTARY VALUE, 8 TIMES/SHIFT

MEASUREMENT METHOD: CHARCOAL TUBE; CARBON DISULFIDE; GAS CHROMATOGRAPHY WITH  
FLAME IONIZATION DETECTION; (NIOSH VOL. II(2) # S49).

5000 POUNDS CERCLA SECTION 103 REPORTABLE QUANTITY

## PHYSICAL DATA

DESCRIPTION: TRANSPARENT, COLORLESS, VOLATILE LIQUID HAVING A FRAGRANT,

SLIGHTLY FRUITY ODOR AND A PECULIAR, FRUITY, BURNING TASTE.

BOILING POINT: 171 F (77 C) MELTING POINT: -119 F (-84 C)

SPECIFIC GRAVITY: 0.9003 VOLATILITY: 100% VAPOR PRESSURE: 73 MMHG @ 20 C

EVAPORATION RATE: (BUTYL ACETATE=1) 6.2 PH: NEUTRAL

SOLUBILITY IN WATER: 8.7% ODOR THRESHOLD: 50 PPM VAPOR DENSITY: 3.04

SOLVENT SOLUBILITY: SOLUBLE IN ALCOHOL, BENZENE, ETHER, ACETONE AND  
CHLOROFORM.

## FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARD:  
DANGEROUS FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME.VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL A CONSIDERABLE DISTANCE TO A SOURCE  
OF IGNITION AND FLASH BACK.

VAPOR-AIR MIXTURES ARE EXPLOSIVE ABOVE FLASH POINT.

PAGE: 2

DATE: 07/31/93

ACCT: 888235-01

INDEX: 05932115924

CAT NO: E1244

PO NBR: UND 40810

FLASH POINT: 24 F (-4 C) (CC) UPPER EXPLOSIVE LIMIT: 11.5%  
LOWER EXPLOSIVE LIMIT: 2.0% AUTOIGNITION TEMP.: 800 F (426 C)  
FLAMMABILITY CLASS(OSHA): IB

FIREFIGHTING MEDIA:  
DRY CHEMICAL, CARBON DIOXIDE, WATER SPRAY OR ALCOHOL-RESISTANT FOAM  
(1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5).

FOR LARGER FIRES, USE WATER SPRAY, FOG OR REGULAR FOAM  
(1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5).

ALCOHOL FOAM  
(NFPA 325M, FIRE HAZARD PROPERTIES OF FLAMMABLE LIQUIDS, GASES, AND VOLATILE  
SOLIDS, 1991).

FIREFIGHTING:  
MOVE CONTAINER FROM FIRE AREA IF YOU CAN DO IT WITHOUT RISK. APPLY COOLING  
WATER TO SIDES OF CONTAINERS THAT ARE EXPOSED TO FLAMES UNTIL WELL AFTER FIRE  
IS OUT. STAY AWAY FROM ENDS OF TANKS. FOR MASSIVE FIRE IN CARGO AREA, USE  
UNMANNED HOSE HOLDER OR MONITOR NOZZLES; IF THIS IS IMPOSSIBLE, WITHDRAW FROM  
AREA AND LET FIRE BURN. WITHDRAW IMMEDIATELY IN CASE OF RISING SOUND FROM  
VENTING SAFETY DEVICE OR ANY DISCOLORATION OF TANK DUE TO FIRE. ISOLATE FOR  
1/2 MILE IN ALL DIRECTIONS IF TANK, RAIL CAR OR TANK TRUCK IS INVOLVED IN FIRE  
(1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5, GUIDE PAGE 26).

EXTINGUISH ONLY IF FLOW CAN BE STOPPED; USE WATER IN FLOODING AMOUNTS AS FOG,  
SOLID STREAMS MAY NOT BE EFFECTIVE. COOL CONTAINERS WITH FLOODING AMOUNTS OF  
WATER, APPLY FROM AS FAR A DISTANCE AS POSSIBLE. AVOID BREATHING VAPORS, KEEP  
UPWIND.

WATER MAY BE INEFFECTIVE (NFPA 325M, FIRE HAZARD PROPERTIES OF FLAMMABLE  
LIQUIDS, GASES, AND VOLATILE SOLIDS, 1991)

## TRANSPORTATION DATA

DEPARTMENT OF TRANSPORTATION HAZARD CLASSIFICATION 49-CFR 172.101:  
FLAMMABLE LIQUIDDEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS 49-CFR 172.101 AND  
SUBPART E:  
FLAMMABLE LIQUIDDEPARTMENT OF TRANSPORTATION PACKAGING REQUIREMENTS: 49-CFR 173.119  
EXCEPTIONS: 49-CFR 173.118

FINAL RULE ON HAZARDOUS MATERIALS REGULATIONS (HMR, 49 CFR PARTS 171-180),  
DOCKET NUMBERS HM-181, HM-181A, HM-181B, HM-181C, HM-181D AND HM-204.  
EFFECTIVE DATE OCTOBER 1, 1991. HOWEVER, COMPLIANCE WITH THE REGULATIONS IS  
AUTHORIZED ON AND AFTER JANUARY 1, 1991. (56 FR 52402, 12/21/90)

EXCEPT FOR EXPLOSIVES, INHALATION HAZARDS, AND INFECTIOUS SUBSTANCES, THE  
EFFECTIVE DATE FOR HAZARD COMMUNICATION REQUIREMENTS IS EXTENDED TO  
OCTOBER 1, 1993. (56 FR 47158, 09/18/91)

U.S. DEPARTMENT OF TRANSPORTATION SHIPPING NAME-ID NUMBER, 49 CFR 172.101:  
ETHYL ACETATE-UN 1173U.S. DEPARTMENT OF TRANSPORTATION HAZARD CLASS OR DIVISION, 49 CFR 172.101:  
3 - FLAMMABLE LIQUIDU.S. DEPARTMENT OF TRANSPORTATION PACKING GROUP, 49 CFR 172.101:  
PG IIU.S. DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS, 49 CFR 172.101  
AND SUBPART E:  
FLAMMABLE LIQUID

U.S. DEPARTMENT OF TRANSPORTATION PACKAGING AUTHORIZATIONS:  
EXCEPTIONS: 49 CFR 173.150  
NON-BULK PACKAGING: 49 CFR 173.202  
BULK PACKAGING: 49 CFR 173.242

U.S. DEPARTMENT OF TRANSPORTATION QUANTITY LIMITATIONS 49 CFR 172.101:  
PASSENGER AIRCRAFT OR RAILCAR: 5 L  
CARGO AIRCRAFT ONLY: 60 L

## TOXICITY

ETHYL ACETATE:  
IRRITATION DATA: 400 PPM EYE-HUMAN,  
TOXICITY DATA: 400 PPM INHALATION-HUMAN TCLO;  
45 GM/M3/2 HOURS INHALATION-MOUSE LC50; 77 MG/M3/1 HOUR  
INHALATION-GUINEA PIG LCLO; 61 GM/M3 INHALATION-CAT LCLO; 20 GM/KG  
SKIN-RABBIT LD50; 5620 MG/KG ORAL-RAT LD50; 4100 MG/KG ORAL-MOUSE LD50;  
4935 MG/KG ORAL-RABBIT LD50; 5500 MG/KG ORAL-GUINEA PIG LD50;

5000 MG/KG SUBCUTANEOUS-RAT LDLO; 3000 MG/KG SUBCUTANEOUS-GUINEA PIG LD50;  
3000 MG/KG SUBCUTANEOUS-CAT LD50; 709 MG/KG INTRAPERITONEAL- MOUSE LD50;  
MUTAGENIC DATA (RTECS).  
CARCINOGEN STATUS: NONE.  
LOCAL EFFECTS: IRRITANT- INHALATION, SKIN, EYE.  
ACUTE TOXICITY LEVEL: MODERATELY TOXIC BY INHALATION; SLIGHTLY TOXIC BY  
INGESTION; RELATIVELY NON-TOXIC BY DERMAL ABSORPTION.  
TARGET EFFECTS: CENTRAL NERVOUS SYSTEM DEPRESSANT. POISONING MAY ALSO AFFECT  
THE LIVER AND KIDNEYS.  
AT INCREASED RISK FROM EXPOSURE: PERSONS WITH CHRONIC RESPIRATORY DISEASE,  
SKIN DISEASE OR ANEMIA.

HEALTH EFFECTS AND FIRST AID

INHALATION:  
ETHYL ACETATE:

IRRITANT/NARCOTIC. 10,000 PPM IMMEDIATELY DANGEROUS TO LIFE OR HEALTH.  
ACUTE EXPOSURE- INHALATION OF 400 PPM FOR 3-5 MINUTES HAS CAUSED RESPIRATORY  
TRACT IRRITATION IN HUMANS. LOW VAPOR CONCENTRATIONS MAY ALSO CAUSE  
HEADACHE, COUGHING, DIZZINESS, DROWSINESS, AND SHORTNESS OF BREATH. HIGH  
CONCENTRATIONS MAY CAUSE NARCOTIC EFFECTS WITH ANESTHESIA AND  
UNCONSCIOUSNESS AND RENAL AND HEPATIC DAMAGE. PATHOLOGIC FINDINGS HAVE  
INCLUDED MARKED HYPEREMIA OF THE RESPIRATORY TRACT, PULMONARY EDEMA,  
HEMORRHAGIC GASTRITIS, AND HYPEREMIA OF THE SPLEEN AND KIDNEYS.  
CHRONIC EXPOSURE- NO ADVERSE SYMPTOMS WERE OBSERVED IN WORKERS EXPOSED TO  
375-1500 PPM FOR SEVERAL MONTHS. ANIMAL STUDIES INDICATE THAT 4450 PPM  
FOR 1 HOUR DAILY FOR 40 DAYS CAUSED SECONDARY ANEMIA, LEUKOCYTOSIS, AND  
LIVER AND KIDNEY DAMAGE. IN RARE INSTANCES, REPEATED EXPOSURE MAY RESULT  
IN SENSITIZATION WITH MUCOUS MEMBRANE IRRITATION AND ECZEMATOUS ERUPTIONS.

FIRST AID- REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING  
HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION. KEEP PERSON WARM AND AT REST.  
TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:  
ETHYL ACETATE:  
IRRITANT

ACUTE EXPOSURE- DIRECT CONTACT WITH THE LIQUID MAY CAUSE IRRITATION WITH  
REDNESS AND DEFATTING ACTION ON THE SKIN.  
CHRONIC EXPOSURE- REPEATED OR PROLONGED EXPOSURE MAY CAUSE DEFATTING  
DERMATITIS. IN RARE INSTANCES, REPEATED EXPOSURE MAY RESULT IN  
SENSITIZATION WITH ECZEMATOUS ERUPTIONS.

FIRST AID- REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH AFFECTED  
AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO  
EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL  
ATTENTION IMMEDIATELY.

EYE CONTACT:  
ETHYL ACETATE:  
IRRITANT

ACUTE EXPOSURE- DIRECT CONTACT WITH THE LIQUID MAY CAUSE IRRITATION, WITH  
REDNESS, PAIN, AND LACRIMATION. EXPOSURE TO 400 PPM MAY CAUSE A SENSATION  
OF IRRITATION IN HUMANS. APPLICATION OF 2 DROPS TO RABBIT CORNEAS,  
FOLLOWED 2 MINUTES LATER BY RINSING WITH WATER, CAUSED IMMEDIATE FINE  
OPTICAL IRREGULARITY OF THE CORNEAL EPITHELIUM, WHICH RETURNED TO NORMAL  
IN 2 DAYS.  
CHRONIC EXPOSURE- REPEATED OR PROLONGED EXPOSURE MAY CAUSE CONJUNCTIVITIS  
AND CORNEA CLOUDING. RABBITS EXPOSED TO THE VAPOR AT LEVELS WHICH WOULD  
BE SCARCELY TOLERABLE TO HUMANS CAUSED NO CORNEAL DAMAGE DESPITE BEING  
EXPOSED FOR 8 HOURS/DAY FOR 5 DAYS/WEEK FOR UP TO 7 WEEKS.

FIRST AID- WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER OR NORMAL SALINE,  
OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL  
REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:  
ETHYL ACETATE:  
NARCOTIC.

ACUTE EXPOSURE- INGESTION OF SMALL AMOUNTS MAY CAUSE SORE THROAT, ABDOMINAL  
PAIN, AND DIARRHEA. LARGE AMOUNTS MAY CAUSE CENTRAL NERVOUS SYSTEM  
DEPRESSION, WITH DIZZINESS, HEADACHE, WEAKNESS, FATIGUE, DROWSINESS, AND  
UNCONSCIOUSNESS. POISONING MAY CAUSE CONGESTION OF THE LIVER AND KIDNEYS.  
CHRONIC EXPOSURE- ANIMALS FED 1000 MG/KG FOR 1 MONTH SHOWED NO EFFECTS.

FIRST AID- REMOVE BY GASTRIC LAVAGE OR EMESIS, USING ACTIVATED CHARCOAL.  
MAINTAIN AIRWAY AND BLOOD PRESSURE. GIVE OXYGEN IF RESPIRATION IS DEPRESSED  
(DREIBACH HANDBOOK OF POISONING, 11TH EDITION). GASTRIC LAVAGE OR EMESIS  
SHOULD NOT BE PERFORMED ON AN UNCONSCIOUS PERSON. LAVAGE SHOULD BE PERFORMED  
BY QUALIFIED MEDICAL PERSONNEL. GET MEDICAL ATTENTION IMMEDIATELY.

ANTIDOTE:

NO SPECIFIC ANTIDOTE. TREAT SYMPTOMATICALLY AND SUPPORTIVELY.

REACTIVITY

REACTIVITY:  
STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

INCOMPATIBILITIES:

ETHYL ACETATE:  
ACIDS (STRONG): EXOTHERMIC DECOMPOSITION.  
BASES (STRONG): EXOTHERMIC DECOMPOSITION.  
CHLOROSULFONIC ACID: EXOTHERMIC DECOMPOSITION.  
LITHIUM TETRAHYDROALUMINATE: POSSIBLE EXPLOSION.  
NITRATES: FIRE AND EXPLOSION HAZARD.  
OLEUM: EXOTHERMIC DECOMPOSITION.  
OXIDIZERS (STRONG): FIRE AND EXPLOSION HAZARD.  
POTASSIUM TERT-BUTOXIDE: POSSIBLE IGNITION.

DECOMPOSITION:

THERMAL DECOMPOSITION PRODUCTS MAY INCLUDE TOXIC OXIDES OF CARBON.

POLYMERIZATION:

HAZARDOUS POLYMERIZATION HAS NOT BEEN REPORTED TO OCCUR UNDER NORMAL  
TEMPERATURES AND PRESSURES.

STORAGE AND DISPOSAL

OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS WHEN STORING OR DISPOSING  
OF THIS SUBSTANCE.

\*\*STORAGE\*\*

STORE IN ACCORDANCE WITH 29 CFR 1910.106.

BONDING AND GROUNDING: SUBSTANCES WITH LOW ELECTROCONDUCTIVITY, WHICH  
MAY BE IGNITED BY ELECTROSTATIC SPARKS, SHOULD BE STORED IN CONTAINERS  
WHICH MEET THE BONDING AND GROUNDING GUIDELINES SPECIFIED IN NFPA 77-1983,  
RECOMMENDED PRACTICE ON STATIC ELECTRICITY.

STORE AWAY FROM INCOMPATIBLE SUBSTANCES.

\*\*DISPOSAL\*\*

DISPOSAL MUST BE IN ACCORDANCE WITH STANDARDS APPLICABLE TO GENERATORS OF  
HAZARDOUS WASTE, 40CFR 262. EPA HAZARDOUS WASTE NUMBER U112.

\*\*\*\*\*  
CONDITIONS TO AVOID

AVOID CONTACT WITH HEAT, SPARKS, FLAMES, OR OTHER SOURCES OF IGNITION. VAPORS  
MAY BE EXPLOSIVE AND POISONOUS; DO NOT ALLOW UNNECESSARY PERSONNEL IN AREA.  
DO NOT OVERHEAT CONTAINERS; CONTAINERS MAY VIOLENTLY RUPTURE AND TRAVEL A  
CONSIDERABLE DISTANCE IN HEAT OF FIRE.

\*\*\*\*\*  
SPILL AND LEAK PROCEDURES

OCCUPATIONAL SPILL:

SHUT OFF IGNITION SOURCES. STOP LEAK IF YOU CAN DO IT WITHOUT RISK. USE WATER  
SPRAY TO REDUCE VAPORS. FOR SMALL SPILLS, TAKE UP WITH SAND OR OTHER  
ABSORBENT MATERIAL AND PLACE INTO CONTAINERS FOR LATER DISPOSAL. FOR LARGER  
SPILLS, DIKE FAR AHEAD OF SPILL FOR LATER DISPOSAL. NO SMOKING, FLAMES OR  
FLARES IN HAZARD AREA. KEEP UNNECESSARY PEOPLE AWAY; ISOLATE HAZARD AREA AND  
DENY ENTRY.

REPORTABLE QUANTITY (RQ): 5000 POUNDS  
THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) SECTION 304 REQUIRES  
THAT A RELEASE EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY FOR THIS  
SUBSTANCE BE IMMEDIATELY REPORTED TO THE LOCAL EMERGENCY PLANNING COMMITTEE  
AND THE STATE EMERGENCY RESPONSE COMMISSION (40 CFR 355.40). IF THE RELEASE OF  
THIS SUBSTANCE IS REPORTABLE UNDER CERCLA SECTION 103, THE NATIONAL RESPONSE  
CENTER MUST BE NOTIFIED IMMEDIATELY AT (800) 424-8802 OR (202) 426-2675 IN THE  
METROPOLITAN WASHINGTON, D.C. AREA (40 CFR 302.6).

PROTECTIVE EQUIPMENT

VENTILATION:

PROVIDE LOCAL EXHAUST OR PROCESS ENCLOSURE VENTILATION TO MEET THE PUBLISHED  
EXPOSURE LIMITS. VENTILATION EQUIPMENT MUST BE EXPLOSION-PROOF.

RESPIRATOR:

THE FOLLOWING RESPIRATORS AND MAXIMUM USE CONCENTRATIONS ARE RECOMMENDATIONS  
BY THE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, NIOSH POCKET GUIDE TO  
CHEMICAL HAZARDS: NIOSH CRITERIA DOCUMENTS OR BY THE U.S. DEPARTMENT OF  
LABOR, 29 CFR 1910 SUBPART Z.  
THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON CONTAMINATION LEVELS FOUND  
IN THE WORK PLACE, MUST NOT EXCEED THE WORKING LIMITS OF THE RESPIRATOR AND  
BE JOINTLY APPROVED BY THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND  
HEALTH AND THE MINE SAFETY AND HEALTH ADMINISTRATION (NIOSH-MSHA).

ETHYL ACETATE:

DATE: 07/31/93

ACCT: 888235-01

PAGE: 5

INDEX: 05932115924

CAT NO: E1244

PO NBR: UND 40810

1000 PPM- ANY CHEMICAL CARTRIDGE RESPIRATOR WITH A FULL FACEPIECE AND ORGANIC VAPOR CARTRIDGE(S).  
ANY POWERED, AIR-PURIFYING RESPIRATOR WITH ORGANIC VAPOR CARTRIDGE(S).

10,000 PPM- ANY AIR-PURIFYING, FULL-FACEPIECE RESPIRATOR (GAS MASK) WITH A CHIN-STYLE, FRONT- OR BACK-MOUNTED ORGANIC VAPOR CANISTER.  
ANY SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE.  
ANY SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE.  
ANY SUPPLIED-AIR RESPIRATOR OPERATED IN A CONTINUOUS-FLOW MODE.

ESCAPE- ANY AIR-PURIFYING, FULL-FACEPIECE RESPIRATOR (GAS MASK) WITH A CHIN-STYLE, FRONT- OR BACK-MOUNTED ORGANIC VAPOR CANISTER.  
ANY APPROPRIATE ESCAPE-TYPE, SELF-CONTAINED BREATHING APPARATUS.

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:

ANY SELF-CONTAINED BREATHING APPARATUS THAT HAS A FULL FACEPIECE AND IS OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE.

ANY SUPPLIED-AIR RESPIRATOR THAT HAS A FULL FACEPIECE AND IS OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE IN COMBINATION WITH AN AUXILIARY SELF-CONTAINED BREATHING APPARATUS OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE.

CLOTHING:  
EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE (IMPERVIOUS) CLOTHING AND EQUIPMENT TO PREVENT REPEATED OR PROLONGED SKIN CONTACT WITH THIS SUBSTANCE.

GLOVES:  
EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE GLOVES TO PREVENT CONTACT WITH THIS SUBSTANCE.

EYE PROTECTION:  
EMPLOYEE MUST WEAR SPLASH-PROOF OR DUST-RESISTANT SAFETY GOGGLES TO PREVENT EYE CONTACT WITH THIS SUBSTANCE.

EMERGENCY EYE WASH: WHERE THERE IS ANY POSSIBILITY THAT AN EMPLOYEE'S EYES MAY BE EXPOSED TO THIS SUBSTANCE, THE EMPLOYER SHOULD PROVIDE AN EYE WASH FOUNTAIN WITHIN THE IMMEDIATE WORK AREA FOR EMERGENCY USE.

AUTHORIZED - FISHER SCIENTIFIC, INC.  
CREATION DATE: 10/09/84 REVISION DATE: 03/24/93

-ADDITIONAL INFORMATION-  
THIS INFORMATION IS BELIEVED TO BE ACCURATE AND REPRESENTS THE BEST INFORMATION CURRENTLY AVAILABLE TO US. HOWEVER, WE MAKE NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO SUCH INFORMATION, AND WE ASSUME NO LIABILITY RESULTING FROM ITS USE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION FOR THEIR PARTICULAR PURPOSES.