

DATE: 08/14/93 ACCT: 888235-01  
INDEX: 05912870140 CAT NO: BP226100 PO NBR: N/A

PAGE: 1

\*\*PHENOL\*\*  
\*\*PHENOL\*\*  
\*\*PHENOL\*\*

MATERIAL SAFETY DATA SHEET

FISHER SCIENTIFIC CHEMICAL DIVISION  
1 REAGENT LANE  
FAIR LAWN NJ 07410  
(201) 796-7100

EMERGENCY 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: \*\*PHENOL\*\* CAS-NUMBER 108-95-2

TRADE NAMES/SYNONYMS:  
BENZENE, CARBOLIC ACID, ENT 1814, HYDROXYBENZENE, MONOHYDROXYBENZENE,  
MONOPHENOL, OXYBENZENE, PHENIC ACID, PHENYL ALCOHOL, PHENYL HYDRATE,  
PHENYL HYDROXIDE, PHENYLIC ACID, PHENYLIC ALCOHOL, STCC 4921220; UN 1671;  
RCRA U188; BP226; A911; A931; A931I; A88; A92; C6H6O; ACC18380

CHEMICAL FAMILY:  
HYDROXYL, AROMATIC

MOLECULAR FORMULA: C6-H5-O-H

MOLECULAR WEIGHT: 94.11

CERCLA RATINGS (SCALE 0-3): HEALTH=3 FIRE=2 REACTIVITY=0 PERSISTENCE=1  
NFA RATINGS (SCALE 0-4): HEALTH=3 FIRE=2 REACTIVITY=0

COMPONENTS AND CONTAMINANTS

COMPONENT: PHENOL PERCENT: 100  
CAS# 108-95-2

OTHER CONTAMINANTS: NONE

EXPOSURE LIMITS:

PHENOL:  
5 PPM (19 MG/M3) OSHA TWA (SKIN)  
5 PPM (19 MG/M3) ACGIH TWA (SKIN)  
5 PPM (19 MG/M3) NIOSH RECOMMENDED TWA  
15.6 PPM (60 MG/M3) NIOSH RECOMMENDED CEILING  
5 PPM (19 MG/M3) DFG MAK TWA  
10 PPM (38 MG/M3) DFG MAK 5 MINUTE PEAK, MOMENTARY VALUE, 8 TIMES/SHIFT

MEASUREMENT METHOD: XAD-7(R) TUBE; METHANOL; HIGH-PRESSURE LIQUID  
CHROMATOGRAPHY WITH ULTRAVIOLET DETECTION; (OSHA # 32).

500/10,000 POUNDS SARA SECTION 302 THRESHOLD PLANNING QUANTITY  
1000 POUNDS SARA SECTION 304 REPORTABLE QUANTITY  
1000 POUNDS CERCLA SECTION 103 REPORTABLE QUANTITY  
SUBJECT TO SARA SECTION 313 ANNUAL TOXIC CHEMICAL RELEASE REPORTING

PHYSICAL DATA

DESCRIPTION: COLORLESS TO PINKISH, HYGROSCOPIC CRYSTALLINE SOLID WITH A  
SHARP, SWEET, TARRY ODOR AND A SHARP BURNING TASTE.

BOILING POINT: 359 F (182 C) MELTING POINT: 106 F (41 C)

SPECIFIC GRAVITY: 1.07 VAPOR PRESSURE: 0.36 MMHG @ 20 C

EVAPORATION RATE: (BUTYL ACETATE = 1) 0.01 PH: 6 (AQ SOLN)

SOLUBILITY IN WATER: 8.4% ODOR THRESHOLD: 0.047 PPM VAPOR DENSITY: 3.2

SOLVENT SOLUBILITY: SOLUBLE IN ETHANOL, BENZENE, CHLOROFORM, ETHER, CARBON  
DISULFIDE, GLYCEROL, ACETONE, PETROLATUM, VOLATILE AND FIXED OILS, AQUEOUS  
ALKALI HYDROXIDES, DIMETHYL SULFOXIDE; SLIGHTLY SOLUBLE IN PETROLEUM ETHER

VISCOSITY: 1.51 CPS @ 80 C

FIRE AND EXPLOSION DATA

DATE: 08/14/93 ACCT: 888235-01  
INDEX: 05912870140 CAT NO: BP226100 PO NBR: N/A

PAGE: 2

FIRE AND EXPLOSION HAZARD:  
MODERATE FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME.

VAPOR-AIR MIXTURES ARE EXPLOSIVE ABOVE FLASH POINT.

VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL A CONSIDERABLE DISTANCE TO A SOURCE  
OF IGNITION AND FLASH BACK.

FLASH POINT: 174 F (79 C) (CC) UPPER EXPLOSIVE LIMIT: 8.6%

LOWER EXPLOSIVE LIMIT: 1.7% AUTOIGNITION TEMP.: 1319 F (715 C)

FLAMMABILITY CLASS(OSHA): IIIA

FIREFIGHTING MEDIA:  
DRY CHEMICAL, WATER SPRAY OR REGULAR 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. FIGHT FIRE FROM  
MAXIMUM DISTANCE. STAY AWAY FROM ENDS OF TANKS. DIKE FIRE-CONTROL WATER FOR  
LATER DISPOSAL; DO NOT SCATTER THE MATERIAL (1990 EMERGENCY RESPONSE  
GUIDEBOOK, DOT P 5800.5, GUIDE PAGE 55).

EXTINGUISH USING AGENTS INDICATED. USE FLOODING QUANTITIES OF WATER AS A FOG,  
SOLID STREAMS MAY BE INEFFECTIVE. COOL FIRE-EXPOSED CONTAINERS WITH FLOODING  
AMOUNTS OF WATER. APPLY WATER FROM AS FAR A DISTANCE AS POSSIBLE. DIKE WATER  
TO PREVENT ENTRY INTO SEWERS AND WATERWAYS. AVOID BREATHING FUMES; KEEP  
UPWIND.

TRANSPORTATION DATA

DEPARTMENT OF TRANSPORTATION HAZARD CLASSIFICATION 49-CFR 172.101:  
POISON B

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS 49-CFR 172.101 AND  
SUBPART E:  
POISON

DEPARTMENT OF TRANSPORTATION PACKAGING REQUIREMENTS: 49-CFR 173.369  
EXCEPTIONS: 49-CFR 173.364

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. (55 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:  
PHENOL, SOLID-UN 1671

U.S. DEPARTMENT OF TRANSPORTATION HAZARD CLASS OR DIVISION, 49 CFR 172.101:  
6.1 - POISONOUS MATERIALS

U.S. DEPARTMENT OF TRANSPORTATION PACKING GROUP, 49 CFR 172.101:  
PG II

U.S. DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS, 49 CFR 172.101  
AND SUBPART E:  
POISON

U.S. DEPARTMENT OF TRANSPORTATION PACKAGING AUTHORIZATIONS:  
EXCEPTIONS: NONE  
NON-BULK PACKAGING: 49 CFR 173.212  
BULK PACKAGING: 49 CFR 173.240

U.S. DEPARTMENT OF TRANSPORTATION QUANTITY LIMITATIONS 49 CFR 172.101:  
PASSENGER AIRCRAFT OR RAILCAR: 25 KG  
CARGO AIRCRAFT ONLY: 100 KG

TOXICITY

PHENOL:  
IRRITATION DATA: 500 MG/24 HOURS SKIN-RABBIT SEVERE; 535 MG OPEN SKIN-RABBIT  
SEVERE; 100 MG SKIN-RABBIT MILD; 5 MG EYE-RABBIT SEVERE; 5 MG/30 SECONDS  
RINSED EYE-RABBIT MILD.  
TOXICITY DATA: 316 MG/M3 INHALATION-RAT LC50; 177 MG/M3 INHALATION-MOUSE LC50;  
74 MG/M3 INHALATION-MAMMAL LC50; 850 MG/KG SKIN-RABBIT LD50; 669 MG/KG

DATE: 08/14/93 ACCT: 888235-01  
INDEX: 05912870140 CAT NO: BP226100 PO NBR: N/A

PAGE: 3

SKIN-RAT LD50: 14 GM/KG ORAL-HUMAN LDLO: 140 MG/KG ORAL-HUMAN LDLO:  
10 MG/KG ORAL-INFANT LDLO: 317 MG/KG ORAL-RAT LD50: 270 MG/KG ORAL- MOUSE  
LD50: 420 MG/KG ORAL-RABBIT LDLO: 80 MG/KG ORAL-CAT LDLO: 500 MG/KG  
ORAL-DOG LDLO: 80 MG/KG SUBCUTANEOUS-CAT LDLO: 450 MG/KG SUBCUTANEOUS-GUINEA  
PIG LDLO: 344 MG/KG SUBCUTANEOUS-MOUSE LD50: 460 MG/KG SUBCUTANEOUS-RAT  
LD50: 620 MG/KG SUBCUTANEOUS-RABBIT LDLO: 112 MG/KG INTRAVENOUS-MOUSE  
LD50: 180 MG/KG INTRAVENOUS-RABBIT LDLO: 300 MG/KG INTRAPERITONEAL-GUINEA  
PIG LDLO: 180 MG/KG INTRAPERITONEAL-MOUSE LD50: 127 MG/KG  
INTRAPERITONEAL-RAT LD50; MUTAGENIC DATA (RTECS); REPRODUCTIVE EFFECTS  
DATA (RTECS); TUMORIGENIC DATA (RTECS).  
CARCINOGEN STATUS: HUMAN INADEQUATE EVIDENCE, ANIMAL INADEQUATE EVIDENCE  
(IARC GROUP-3).  
LOCAL EFFECTS: CORROSIVE- INHALATION, SKIN, EYE, INGESTION.  
ACUTE TOXICITY LEVEL: HIGHLY TOXIC BY INHALATION; TOXIC BY DERMAL ABSORPTION  
AND INGESTION.  
TARGET EFFECTS: NEUROTOXIN; CENTRAL NERVOUS SYSTEM DEPRESSANT. POISONING MAY  
ALSO AFFECT THE LIVER AND KIDNEYS.  
AT INCREASED RISK FROM EXPOSURE: PERSONS WITH CONVULSIVE DISORDERS AND  
ABNORMALITIES OF THE SKIN, RESPIRATORY TRACT, LIVER AND KIDNEYS.

#### HEALTH EFFECTS AND FIRST AID

##### INHALATION:

PHENOL:  
CORROSIVE/NEUROTOXIN/NARCOTIC/HIGHLY TOXIC.  
250 PPM IMMEDIATELY DANGEROUS TO LIFE OR HEALTH.  
ACUTE EXPOSURE- INHALATION MAY CAUSE SEVERE IRRITATION OF THE MUCOUS  
MEMBRANES, PROFUSE SWEATING, HEADACHE, INTENSE THIRST, NAUSEA AND  
VOMITING, ABDOMINAL PAIN, DIARRHEA, SALIVATION, CYANOSIS, TINNITUS,  
Twitching, TREMORS, AND CONVULSIONS. THE CENTRAL NERVOUS SYSTEM MAY  
INITIALLY BE STIMULATED FOLLOWED BY SEVERE, PROFOUND DEPRESSION  
PROGRESSING TO COMA. THE HEART RATE MAY INCREASE THEN BECOME  
SLOW AND IRREGULAR. THE BLOOD PRESSURE MAY INCREASE SLIGHTLY AND  
THEN FALL MARKEDLY WITH DYSPNEA AND FALL IN BODY TEMPERATURE.  
STERTOROUS BREATHING, MUCOUS RALES, AND FROTHING AT THE MOUTH AND NOSE MAY  
INDICATE THE PRESENCE OF PULMONARY EDEMA, WHICH MAY BE FOLLOWED BY  
PNEUMONIA. METHEMOGLOBINEMIA AND HEMOLYSIS HAVE BEEN REPORTED  
OCCASIONALLY. DEATH MAY OCCUR FROM RESPIRATORY, CIRCULATORY OR CARDIAC  
FAILURE. IF DEATH IS NOT IMMEDIATE, JAUNDICE AND OLIGURIA OR ANURIA MAY  
OCCUR.  
CHRONIC EXPOSURE- SYMPTOMS OF CHRONIC PHENOL POISONING MAY INCLUDE  
VOMITING, DIFFICULTY SWALLOWING, PTYALISM, DIARRHEA, ANOREXIA, HEADACHE,  
VERTIGO, MUSCLE WEAKNESS AND PAIN, MENTAL DISTURBANCES, DARK OR SMOKEY  
URINE AND POSSIBLY SKIN ERUPTIONS. EXTENSIVE DAMAGE TO THE LIVER AND  
KIDNEYS MAY BE FATAL. HIND LIMB PARALYSIS HAS BEEN REPORTED IN ANIMALS.  
PATHOLOGIC FINDINGS IN ANIMALS REPEATEDLY EXPOSED TO PHENOL VAPORS  
INCLUDE EXTENSIVE NECROSIS OF THE MYOCARDIUM, ACUTE LOBULAR PNEUMONIA,  
VASCULAR DAMAGE, AND LIVER AND KIDNEY DAMAGE.

FIRST AID- REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING  
HAS STOPPED, GIVE ARTIFICIAL RESPIRATION. MAINTAIN AIRWAY AND BLOOD  
PRESSURE AND ADMINISTER OXYGEN IF AVAILABLE. KEEP AFFECTED PERSON WARM AND  
AT REST. TREAT SYMPTOMATICALLY AND SUPPORTIVELY. ADMINISTRATION OF OXYGEN  
SHOULD BE PERFORMED BY QUALIFIED PERSONNEL. GET MEDICAL ATTENTION  
IMMEDIATELY.

##### SKIN CONTACT:

PHENOL:  
CORROSIVE/NEUROTOXIN/NARCOTIC/TOXIC.  
ACUTE EXPOSURE- CONTACT WITH 0.5% SOLUTIONS MAY CAUSE LOCAL ANESTHESIA, 1%  
SOLUTIONS SOMETIMES CAUSE SKIN NECROSIS, AND 10% SOLUTIONS MAY CAUSE  
BURNS. PHENOL BURNS MAY BE SEVERE, BUT PAINLESS DUE TO DAMAGE TO NERVE  
ENDINGS. THE SKIN MAY TURN WHITE, AND LATER YELLOWISH-BROWN AND MAY BE  
DEEPLY ERODED AND SCARRED. GANGRENE MAY OCCUR AT THE SITE OF CONTACT.  
VAPORS AND LIQUID MAY BE READILY ABSORBED THROUGH THE SKIN TO CAUSE  
SYSTEMIC EFFECTS AS DETAILED IN ACUTE INHALATION EXPOSURE. THERE HAVE  
BEEN SEVERAL REPORTS OF CARDIAC ARRHYTHMIAS ASSOCIATED WITH APPLICATION  
OF SOLUTIONS OF PHENOL, HEXACHLOROPHENE, AND CROTON OIL TO THE SKIN.  
PROFOUND COMA AND DEATH HAVE BEEN REPORTED TO OCCUR WITHIN 10 MINUTES  
FOLLOWING SKIN CONTACT. PATHOLOGIC FINDINGS INCLUDED CONGESTION OF THE  
LUNGS, LIVER, SPLEEN, AND KIDNEYS.  
CHRONIC EXPOSURE- PROLONGED EXPOSURE MAY CAUSE A BLUE OR BROWNISH  
DISCOLORATION OF THE TENDONS OVER THE KNUCKLES OF THE HANDS, DERMATITIS,  
VITILIGO, AND RARELY, SKIN SENSITIZATION. SYMPTOMS OF CHRONIC PHENOL  
POISONING MAY OCCUR AS DETAILED AS IN CHRONIC INHALATION EXPOSURE.  
EVALUATED BY RTECS AS PRODUCING CARCINOGENIC AND NEOPLASTIC TUMORS IN  
MICE.

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 (AT LEAST 15-20 MINUTES). IN CASE OF CHEMICAL  
BURNS, COVER AREA WITH STERILE, DRY DRESSING, BANDAGE SECURELY, BUT NOT  
TOO TIGHTLY. GET MEDICAL ATTENTION IMMEDIATELY.

##### EYE CONTACT:

PHENOL:  
CORROSIVE.  
ACUTE EXPOSURE- VAPORS HAVE CAUSED MARKED IRRITATION FROM BRIEF,  
INTERMITTENT INDUSTRIAL EXPOSURE TO 48 PPM. CONCENTRATED LIQUID OR

DATE: 08/14/93 ACCT: 888235-01  
INDEX: 05912870140 CAT NO: BP226100 PO NBR: N/A

PAGE: 4

SOLID MAY CAUSE SEVERE IRRITATION WITH REDNESS, PAIN, AND BLURRED VISION.  
CONCENTRATED PHENOL IN HUMAN EYES HAS CAUSED CHEMOTIC CONJUNCTIVA,  
HYPERESTHETIC, WHITE CORNEA, EDEMATOUS EYELIDS, AND SEVERE IRITIS. IN  
SOME CASES, THE EYELIDS HAVE BEEN SO SEVERELY DAMAGED THAT THEY REQUIRED  
PLASTIC SURGERY. THE FINAL VISUAL RESULTS HAVE VARIED FROM COMPLETE  
RECOVERY TO PARTIAL RECOVERY TO BLINDNESS AND LOSS OF THE EYE.  
CRYSTALLINE OR CONCENTRATED AQUEOUS PHENOL ON RABBITS EYES CAUSES ALMOST  
INSTANTANEOUS WHITE OPAFCIFICATION OF THE CORNEAL EPITHELIUM. EIGHT HOURS  
LATER, THE CORNEA WAS ANESTHETIC, THE SURFACE ULCERATED, AND THE STROMA  
OPAQUE. FIVE WEEKS LATER, ENTROPION, SCARRING OF THE CONJUNCTIVA AND  
OPACITY OF THE CORNEA OCCURRED.  
CHRONIC EXPOSURE- REPEATED OR PROLONGED EXPOSURE TO PHENOL VAPORS MAY CAUSE  
CONJUNCTIVITIS AND HAS CAUSED GRAY DISCOLORATION OF THE SCLERA WITH BROWN  
SPOTS NEAR THE INSERTION OF THE RECTUS MUSCLE TENDON.

FIRST AID- WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER, OCCASIONALLY  
LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (AT  
LEAST 15-20 MINUTES). CONTINUE IRRIGATING WITH NORMAL SALINE UNTIL THE PH  
HAS RETURNED TO NORMAL (30-60 MINUTES). COVER WITH STERILE BANDAGES. GET  
MEDICAL ATTENTION IMMEDIATELY.

##### INGESTION:

PHENOL:  
CORROSIVE/NEUROTOXIN/NARCOTIC/TOXIC.  
ACUTE EXPOSURE- INGESTION MAY CAUSE IMMEDIATE INTENSE BURNING OF THE MOUTH  
AND THROAT, WHITE OR BROWNISH STAINS AND AREAS OF NECROSIS ON THE LIPS  
AND IN THE MOUTH AND ESOPHAGUS, MARKED ABDOMINAL PAIN, PALE FACE,  
AND CONTRACTED OR DILATED PUPILS. SYSTEMIC EFFECTS MAY OCCUR AS  
DETAILED IN ACUTE INHALATION EXPOSURE. THE APPROXIMATE LETHAL DOSE IN  
MAN IS 140 MG/KG.  
CHRONIC EXPOSURE- PERSONS INGESTING PHENOL CONTAMINATED WELL WATER  
EXPERIENCED DIARRHEA, DARK URINE, AND SORES AND BURNING IN THE MOUTH.  
OTHER SYMPTOMS OF CHRONIC PHENOL POISONING MAY OCCUR AS DETAILED IN  
CHRONIC INHALATION EXPOSURE. ADMINISTRATION OF PHENOL IN DRINKING WATER  
TO RATS FOR THREE GENERATIONS PRODUCED STUNTED GROWTH AT 7000 PPM OVER 2  
GENERATIONS; OFFSPRING OF RATS GIVEN 10,000 PPM DIED; AT 12,000 PPM  
ANIMALS DID NOT REPRODUCE. OTHER REPRODUCTIVE EFFECTS HAVE ALSO BEEN  
REPORTED IN ANIMALS.

FIRST AID- IF VICTIM IS CONSCIOUS, AND IF CORROSIVE INJURY IS ABSENT,  
REMOVE POISON BY GASTRIC LAVAGE OR EMESIS. ACTIVATED CHARCOAL IS USEFUL.  
FOLLOW WITH 240 ML OF MILK. GASTRIC LAVAGE AND EMESIS ARE NOT TO BE USED  
IN THE PRESENCE OF ESOPHAGEAL INJURY (DREIBACH, HANDBOOK OF POISONING, 12TH  
ED.) GASTRIC 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:

PHENOL:  
ACETALDEHYDE: VIOLENT REACTION.  
ALUMINUM AND ALLOYS: MAY CORRODE.  
ALUMINUM CHLORIDE + NITROBENZENE: VIOLENT EXPLOSION.  
1,3-BUTADIENE, BORON TRIFLUORIDE, AND DIETHYLETHERATE: POSSIBLE EXPLOSION.  
CALCIUM HYPOCHLORITE: EXOTHERMIC REACTION WITH POSSIBLE IGNITION.  
FORMALDEHYDE: POSSIBLE EXOTHERMIC REACTION.  
LEAD AND ALLOYS: MAY CORRODE.  
MAGNESIUM AND ALLOYS: MAY CORRODE.  
METALS AND ALLOYS: MAY CORRODE.  
OXIDIZERS (STRONG): FIRE AND EXPLOSION HAZARD.  
PEROXODISULFURIC ACID: POSSIBLE EXPLOSION.  
PEROXOMONOSULFURIC ACID: EXPLOSION.  
PLASTICS, RUBBER, COATINGS: MAY CORRODE.  
SODIUM NITRATE + TRIFLUOROACETIC ACID: VIOLENT EXOTHERMIC REACTION.  
SODIUM NITRITE: MAY EXPLODE.  
ZINC AND ALLOYS: MAY CORRODE.

##### 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\*\*

DATE: 08/14/93 ACCT: 888235-01  
 INDEX: 05912870140 CAT NO: BP226100 PO NBR: N/A

STORE IN A COOL, DRY, WELL-VENTILATED LOCATION. SEPARATE FROM OXIDIZERS AND ACUTE FIRE HAZARDS. (NFPA 49, HAZARDOUS CHEMICALS DATA, 1991).

STORE AWAY FROM INCOMPATIBLE SUBSTANCES.

THRESHOLD PLANNING QUANTITY (TPQ):  
 THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) SECTION 302 REQUIRES THAT EACH FACILITY WHERE ANY EXTREMELY HAZARDOUS SUBSTANCE IS PRESENT IN A QUANTITY EQUAL TO OR GREATER THAN THE TPQ ESTABLISHED FOR THAT SUBSTANCE NOTIFY THE STATE EMERGENCY RESPONSE COMMISSION FOR THE STATE IN WHICH IT IS LOCATED. SECTION 303 OF SARA REQUIRES THESE FACILITIES TO PARTICIPATE IN LOCAL EMERGENCY RESPONSE PLANNING (40 CFR 355.30).

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

MAY BURN BUT DOES NOT IGNITE READILY. CONTAINERS MAY EXPLODE IN HEAT OF FIRE.

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

SOIL SPILL:  
 DIG A HOLDING AREA SUCH AS PIT, POND OR LAGOON TO CONTAIN SPILLED MATERIAL. USE PROTECTIVE COVER SUCH AS A PLASTIC SHEET TO PREVENT DISSOLVING IN FIREFIGHTING WATER OR RAIN.

NEUTRALIZE SPILL WITH SLAKED LIME, SODIUM BICARBONATE OR CRUSHED LIMESTONE.

AIR SPILL:  
 APPLY WATER SPRAY TO KNOCK DOWN AND REDUCE VAPORS. KNOCK-DOWN WATER IS CORROSIVE AND TOXIC AND SHOULD BE DIKED FOR CONTAINMENT.

WATER SPILL:  
 USE ACTIVATED CARBON TO ABSORB SPILLED SUBSTANCE THAT IS DISSOLVED.

USE MECHANICAL DREDGES OR LIFTS TO EXTRACT IMMOBILIZED MASSES OF POLLUTION AND PRECIPITATES.

OCCUPATIONAL SPILL:  
 DO NOT TOUCH SPILLED MATERIAL. 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 SMALL DRY SPILLS, WITH A CLEAN SHOVEL PLACE MATERIAL INTO CLEAN, DRY CONTAINERS AND COVER. MOVE CONTAINERS FROM SPILL AREA. FOR LARGER SPILLS, DIKE FAR AHEAD OF SPILL FOR LATER DISPOSAL. KEEP UNNECESSARY PEOPLE AWAY. ISOLATE HAZARD AREA AND DENY ENTRY. VENTILATE CLOSED SPACES BEFORE ENTERING.

REPORTABLE QUANTITY (RQ): 1000 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:  
 PROCESS ENCLOSURE VENTILATION RECOMMENDED TO MEET 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).

PHENOL:

- 50 PPM - ANY CHEMICAL CARTRIDGE RESPIRATOR WITH ORGANIC VAPOR CARTRIDGE(S) IN COMBINATION WITH A DUST AND MIST FILTER.  
 ANY SUPPLIED-AIR RESPIRATOR.  
 ANY SELF-CONTAINED BREATHING APPARATUS.
- 125 PPM - ANY SUPPLIED-AIR RESPIRATOR OPERATED IN A CONTINUOUS FLOW MODE  
 ANY POWERED AIR-PURIFYING RESPIRATOR WITH ORGANIC VAPOR CARTRIDGE(S) IN COMBINATION WITH A DUST AND MIST FILTER.
- 250 PPM - ANY SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE.  
 ANY SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE.  
 ANY CHEMICAL CARTRIDGE RESPIRATOR WITH A FULL FACEPIECE AND ORGANIC VAPOR CARTRIDGE(S) IN COMBINATION WITH A HIGH-EFFICIENCY

DATE: 08/14/93 ACCT: 888235-01  
 INDEX: 05912870140 CAT NO: BP226100 PO NBR: N/A

PARTICULATE FILTER.  
 ANY AIR-PURIFYING FULL FACEPIECE RESPIRATOR (GAS MASK) WITH A CHIN-STYLE OR FRONT- OR BACK-MOUNTED ORGANIC VAPOR CANISTER HAVING A HIGH-EFFICIENCY PARTICULATE FILTER.  
 ANY POWERED AIR-PURIFYING RESPIRATOR WITH A TIGHT-FITTING FACEPIECE AND ORGANIC VAPOR CARTRIDGE(S) IN COMBINATION WITH A HIGH-EFFICIENCY PARTICULATE FILTER.

ESCAPE - ANY AIR-PURIFYING FULL FACEPIECE RESPIRATOR (GAS MASK) WITH A CHIN-STYLE OR FRONT- OR BACK-MOUNTED ORGANIC VAPOR CANISTER HAVING A HIGH-EFFICIENCY PARTICULATE FILTER.  
 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 ANY POSSIBILITY OF 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 AND A FACESHIELD TO PREVENT CONTACT WITH THIS SUBSTANCE.

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

AUTHORIZED - FISHER SCIENTIFIC, INC.  
 CREATION DATE: 09/25/84 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.