

DATE: 08/14/93

ACCT: 888235-01

PAGE: 1

INDEX: N/A

CAT NO: X3S4

PO NBR: N/A

XYLENE
XYLENE
XYLENE

MATERIAL SAFETY DATA SHEET

FISHER SCIENTIFIC
CHEMICAL DIVISION
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SUBSTANCE IDENTIFICATION

SUBSTANCE: **XYLENE** CAS-NUMBER 1330-20-7

TRADE NAMES/SYNONYMS:

BENZENE, DIMETHYL-; DILAN; DIMETHYLBENZENE; XYLOL; RCRA U239; STCC 4909350; UN 1307; X3S; X4; X5; X16; X5S; C8H10; ACC25150

CHEMICAL FAMILY:
HYDROCARBON, AROMATIC

MOLECULAR FORMULA: C6-H4-(C-H3)2

MOLECULAR WEIGHT: 106.16

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

COMPONENTS AND CONTAMINANTS

COMPONENT: XYLENE (O-, M-, P-ISOMERS) PERCENT: 83.0
CAS# 1330-20-7COMPONENT: ETHYL BENZENE PERCENT: 17.0
CAS# 100-41-4

OTHER CONTAMINANTS: NONE

EXPOSURE LIMITS:

XYLENE

100 PPM (434 MG/M3) OSHA TWA; 150 PPM (651 MG/M3) OSHA STEL
100 PPM (434 MG/M3) ACGIH TWA; 150 PPM (651 MG/M3) ACGIH STEL
100 PPM (434 MG/M3) NIOSH RECOMMENDED TWA;
150 PPM (651 MG/M3) NIOSH RECOMMENDED STEL
100 PPM (434 MG/M3) DFG MAK TWA;
200 PPM (868 MG/M3) DFG MAK 30 MINUTE PEAK, AVERAGE VALUE, 4 TIMES/SHIFT

MEASUREMENT METHOD: CHARCOAL TUBE; CARBON DISULFIDE; GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION; (NIOSH VOL. III # 1501, AROMATIC HYDROCARBONS).

1000 POUNDS CERCLA SECTION 103 REPORTABLE QUANTITY
SUBJECT TO SARA SECTION 313 ANNUAL TOXIC CHEMICAL RELEASE REPORTING

ETHYL BENZENE:

100 PPM (434 MG/M3) OSHA TWA; 125 PPM (543 MG/M3) OSHA STEL
100 PPM (434 MG/M3) ACGIH TWA; 125 PPM (543 MG/M3) ACGIH STEL
100 PPM (434 MG/M3) NIOSH RECOMMENDED TWA;
125 PPM (543 MG/M3) NIOSH RECOMMENDED STEL
100 PPM (434 MG/M3) DFG MAK TWA (SKIN);
200 PPM (868 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. III # 1501, AROMATIC HYDROCARBONS).

1000 POUNDS CERCLA SECTION 103 REPORTABLE QUANTITY
SUBJECT TO SARA SECTION 313 ANNUAL TOXIC CHEMICAL RELEASE REPORTING

OSHA REVOKED THE FINAL RULE LIMITS OF JANUARY 19, 1989 IN RESPONSE TO THE 11TH CIRCUIT COURT OF APPEALS DECISION (AFL-CIO V. OSHA) EFFECTIVE JUNE 30, 1993. SEE 29 CFR 1910.1000 (58 FR 35338)

PHYSICAL DATA

DESCRIPTION: LIGHT COLORED OR COLORLESS MOBILE LIQUID WITH AN AROMATIC ODOR.

BOILING POINT: 279-284 F (137-140 C) SPECIFIC GRAVITY: 0.86

DATE: 08/14/93

ACCT: 888235-01

PAGE: 2

INDEX: N/A

CAT NO: X3S4

PO NBR: N/A

VOLATILITY: 100% VAPOR PRESSURE: 6 MMHG @ 20 C

EVAPORATION RATE: (BUTYL ACETATE = 1) 0.6 SOLUBILITY IN WATER: 0.00003%

ODOR THRESHOLD: 0.3 PPM VAPOR DENSITY: 3.7

SOLVENT SOLUBILITY: SOLUBLE IN ALCOHOL, ETHER, MANY ORGANIC SOLVENTS

FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARD:
DANGEROUS 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.

DUE TO LOW ELECTROCONDUCTIVITY OF THE SUBSTANCE, FLOW OR AGITATION MAY GENERATE ELECTROSTATIC CHARGES RESULTING IN SPARKS WITH POSSIBLE IGNITION.

FLASH POINT: 81-90 F (27-32 C) (CC) UPPER EXPLOSIVE LIMIT: 7.0%

LOWER EXPLOSIVE LIMIT: 1.0% AUTOIGNITION TEMP.: 867-984 F (464-529 C)

FLAMMABILITY CLASS(OSHA): IC

FIREFIGHTING MEDIA:

DRY CHEMICAL, CARBON DIOXIDE, 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).

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 27).

EXTINGUISH ONLY IF FLOW CAN BE STOPPED; USE WATER IN FLOODING AMOUNTS AS FOG, SOLID STREAMS MAY SPREAD FIRE. COOL CONTAINERS WITH FLOODING QUANTITIES OF WATER, APPLY FROM AS FAR A DISTANCE AS POSSIBLE. AVOID BREATHING TOXIC 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. (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:
XYLENES-UN 1307U.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 LIQUIDU.S. DEPARTMENT OF TRANSPORTATION PACKAGING AUTHORIZATIONS:
EXCEPTIONS: 49 CFR 173.150

DATE: 08/14/93

ACCT: 888235-01

PAGE: 3

INDEX: N/A

CAT NO: X3S4

PO NBR: N/A

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

XYLENE:

IRRITATION DATA: 200 PPM EYE-HUMAN; 87 MG EYE-RABBIT MILD; 5 MG/24 HOURS
EYE-RABBIT SEVERE; 100% SKIN-RABBIT MODERATE; 500 MG/24 HOURS SKIN-RABBIT
MODERATE

TOXICITY DATA: 10000 PPM/6 HOURS INHALATION-MAN LCLO; 200 PPM INHALATION-HUMAN
TCLO; 5000 PPM/4 HOURS INHALATION-RAT LC50; 450 PPM INHALATION-GUINEA PIG
LCLO; 50 MG/KG ORAL-HUMAN LDLO; 4300 MG/KG ORAL-RAT LD50; 1700 MG/KG
SUBCUTANEOUS-RAT LD50; 129 MG/KG INTRAVENOUS-RABBIT LDLO; 2 GM/KG
INTRAPERITONEAL-MAMMAL LDLO; 2459 MG/KG INTRAPERITONEAL-RAT LD50; 1548 MG/KG
INTRAPERITONEAL-MOUSE LD50; 2000 MG/KG INTRAPERITONEAL-GUINEA PIG LDLO;
REPRODUCTIVE EFFECTS DATA (RTECS), (DPIRDU), (85IFA1), (38MKAJ).

CARCINOGEN STATUS: HUMAN INADEQUATE EVIDENCE, ANIMAL INADEQUATE EVIDENCE,
(IARC GROUP-3).

LOCAL EFFECTS: IRRITANT- INHALATION, SKIN, EYE.

ACUTE TOXICITY LEVEL: MODERATELY TOXIC BY INHALATION, INGESTION.

TARGET EFFECTS: CENTRAL NERVOUS SYSTEM DEPRESSANT. POISONING MAY ALSO AFFECT
THE NERVOUS SYSTEM, LIVER AND KIDNEYS.

AT INCREASED RISK FROM EXPOSURE: PREGNANT WOMEN.

ADDITIONAL DATA: ALCOHOL MAY ENHANCE THE TOXIC EFFECTS. STIMULANTS SUCH
AS EPINEPHRINE OR EPHEDRINE MAY INDUCE VENTRICULAR FIBRILLATION.

ETHYL BENZENE:

IRRITATION DATA: 15 MG/24 HOURS OPEN SKIN-RABBIT MILD; 500 MG EYE-RABBIT
SEVERE

TOXICITY DATA: 100 PPM/8 HOURS INHALATION-HUMAN TCLO; 4000 PPM/4 HOURS
INHALATION-RAT LCLO; 50 GM/M3/2 HOURS INHALATION-MOUSE LDLO; 10000 PPM
INHALATION-GUINEA PIG LCLO; 17800 MG/KG SKIN-RABBIT LD50; 3500 MG/KG
ORAL-RAT LD50; 2272 MG/KG INTRAPERITONEAL-MOUSE LD50; MUTAGENIC DATA
(RTECS); REPRODUCTIVE EFFECTS DATA (RTECS).

CARCINOGEN STATUS: NONE.

LOCAL EFFECTS: IRRITANT- INHALATION, SKIN, EYES.

ACUTE TOXICITY LEVEL: MODERATELY TOXIC BY INGESTION; SLIGHTLY TOXIC BY DERMAL
ABSORPTION.

TARGET EFFECTS: CENTRAL NERVOUS SYSTEM DEPRESSANT. POISONING MAY AFFECT THE
LIVER.

AT INCREASED RISK FROM EXPOSURE: PERSONS WITH PRE-EXISTING SKIN DISORDERS OR
IMPAIRED PULMONARY, RENAL, OR LIVER FUNCTION.

ADDITIONAL DATA: MAY CROSS THE PLACENTA. ETHYL BENZENE EXPOSED TO
PHOTO-OXIDATION IN THE PRESENCE OF OZONE AND NITROGEN DIOXIDE. AS IN THE
FORMATION OF SMOG, YIELDS PRODUCTS HAVING CONSIDERABLE IRRITANCY TO THE
HUMAN EYE.

HEALTH EFFECTS AND FIRST AID

INHALATION:

XYLENE:

IRRITANT/NARCOTIC. 1000 PPM IMMEDIATELY DANGEROUS TO LIFE OR HEALTH.

ACUTE EXPOSURE- IRRITATION OF THE UPPER RESPIRATORY TRACT MAY OCCUR AT 200
PPM. EXPOSURE TO HIGHER CONCENTRATIONS MAY CAUSE MORE SEVERE IRRITATION
AND INITIAL CENTRAL NERVOUS SYSTEM EXCITATION FOLLOWED BY DEPRESSION.
SIGNS AND SYMPTOMS MAY INCLUDE RESPIRATORY DIFFICULTY AND SUBSTERNAL PAIN,
TRANSIENT EUPHORIA AND EMOTIONAL LABILITY, HEADACHE, NAUSEA, VOMITING,
ANOREXIA, ABDOMINAL PAIN, DIZZINESS, DROWSINESS, ATAXIA, AND STAGGERING.
THERE MAY BE SALIVATION, SLURRED SPEECH, BLURRED VISION, NYSTAGMUS,
TINNITUS, TREMORS, CONFUSION, AND FLUSHING OF THE FACE AND A FEELING OF
INCREASED BODY HEAT. IN SEVERE EXPOSURES, THERE MAY BE STUPOR, ANESTHESIA,
UNCONSCIOUSNESS, AND COMA WHICH MAY BE PUNCTUATED BY EPISODES OF
NEUROIRRITABILITY, BUT RARELY FRANK CONVULSIONS, EXCEPT IN TERMINAL
ASPHYXIA. LIVER AND KIDNEY DAMAGE MAY OCCUR, BUT ARE USUALLY MILD AND
TRANSIENT. A GROUP OF SUBJECTS WHO INHALED 12.3 UMOL/L OF XYLENE
WHILE EXERCISING BECAME SIGNIFICANTLY IMPAIRED ON 3 NEUROPSYCHOLOGICAL
TESTS. EXPOSURE OF 3 PAINTERS TO APPROXIMATELY 10,000 PPM FOR 18.5
HOURS RESULTED IN 1 DEATH FROM PULMONARY EDEMA AND PETECHIAL BRAIN
HEMORRHAGE. BOTH SURVIVORS WERE UNCONSCIOUS FOR 19-24 HOURS AND
EXPERIENCED RETROGRADE AMNESIA, HYPOTHERMIA, AND LUNG CONGESTION. RENAL
AND HEPATIC IMPAIRMENT ALSO DEVELOPED. COMPLETE RECOVERY TOOK 15 DAYS.
HIGH CONCENTRATIONS MAY CAUSE DEATH FROM SUDDEN VENTRICULAR FIBRILLATION,
BUT MORE FREQUENTLY DEATH OCCURS FROM RESPIRATORY ARREST.

CHRONIC EXPOSURE- REPEATED OR PROLONGED INHALATION OF VAPORS ABOVE 200 PPM
MAY CAUSE NAUSEA, VOMITING, ABDOMINAL PAIN, AND ANOREXIA. OTHER COMMON
COMPLAINTS INCLUDE HEADACHE, FATIGUE, LASSITUDE, IRRITABILITY, BREATHING
DIFFICULTIES, AND FLATULENCE. EFFECTS ON THE NERVOUS SYSTEM MAY RESULT IN
EXCITATION, FOLLOWED BY DEPRESSION, PARESTHESIAS, TREMORS, APPREHENSION,
IMPAIRED MEMORY, INSOMNIA, VERTIGO, AND TINNITUS. EFFECTS ON REACTION
TIME, MANUAL COORDINATION, BODY BALANCE AND EEG OCCURRED WITH REPEATED
EXPOSURE TO 90 PPM OF M-XYLENE. SWEETISH TASTE IN THE MOUTH, DRY NOSE AND
THROAT, STRONG THIRST, MUCOSAL HEMORRHAGE, AND ANEMIA HAVE BEEN REPORTED.
EFFECTS ON THE LIVER, KIDNEY, CARDIOVASCULAR SYSTEM, AND THE BONE MARROW
HAVE ALSO BEEN REPORTED, ALTHOUGH THE LATTER HAS BEEN QUESTIONED. EXPOSURE

PAGE: 4

DATE: 08/14/93

ACCT: 888235-01

INDEX: N/A

CAT NO: X3S4

PO NBR: N/A

OF RABBITS TO 1150 PPM FOR 40-55 DAYS RESULTED IN A REVERSIBLE DECREASE IN
THE RED AND WHITE CELL COUNTS AND AN INCREASE IN THE PLATELETS. ONE CASE
OF AN APPARENT EPILEPTIFORM SEIZURE FOLLOWING A RELATIVELY BRIEF EXPOSURE
HAS OCCURRED. WOMEN MAY DEVELOP MENSTRUAL DISORDERS, SUCH AS MENORRHAGIA
OR METRORRHAGIA, INFERTILITY, AND PATHOLOGICAL PREGNANCY CONDITIONS
INCLUDING TOXICOSIS, DANGER OF MISCARRIAGE, AND HEMORRHAGING DURING
DELIVERY. REPEATED EXPOSURE OF PREGNANT MICE, RATS AND RABBITS TO THE
INDIVIDUAL OR THE MIXED ISOMERS HAS RESULTED IN MATERNAL EFFECTS AND
EFFECTS ON FERTILITY, ON THE EMBRYO OR FETUS, AND SPECIFIC DEVELOPMENTAL
ABNORMALITIES. INCLUDED AMONG THESE EFFECTS ARE FETAL DEATH, FETOTOXICITY,
PRE- AND POST-IMPLANTATION MORTALITY, ABORTION, CRANIOFACIAL AND
MUSCULOSKELETAL ABNORMALITIES, AND EXTRA EMBRYONIC STRUCTURES.

ETHYL BENZENE:

IRRITANT/NARCOTIC. 2000 PPM IMMEDIATELY DANGEROUS TO LIFE AND HEALTH.
ACUTE EXPOSURE- MAY CAUSE SEVERE IRRITATION OF THE NOSE AND THROAT. ODOR IS
CONSIDERED AN ADEQUATE WARNING PROPERTY AT LEVELS BELOW SYSTEMIC TOXICITY.
AT HIGHER CONCENTRATIONS COUGH, FATIGUE, DEPRESSION, VERTIGO OR DIZZINESS,
DYSPNEA, SENSE OF CHEST CONSTRICTION, HEADACHE, NARCOSIS, AND COMA
MAY OCCUR. DEATH IS POSSIBLE FROM RESPIRATORY CENTER PARALYSIS.
EXPOSED ANIMALS EXHIBITED SIMILAR SYMPTOMS, AS WELL AS TREMOR OF THE
EXTREMITIES, STATIC AND MOTOR ATAXIA, STAGGERING GAIT, AND LOSS OF
RIGHTING REFLEX. LOSS OF CONSCIOUSNESS WAS FOLLOWED BY DEATH FROM
RESPIRATORY PARALYSIS. PATHOLOGIES INCLUDED EDEMA AND CONGESTION OF THE
BRAIN AND LUNGS, GENERALIZED VISCERAL HYPEREMIA, EPITHELIAL NECROSIS OF
THE RENAL TUBULES, AND HEPATIC DYSTROPHY. ODOR AND EYE IRRITATION ARE
CONSIDERED ADEQUATE WARNING PROPERTIES AT LEVELS BELOW SYSTEMIC TOXICITY.
REPRODUCTIVE EFFECTS HAVE BEEN REPORTED IN ANIMALS.

CHRONIC EXPOSURE- MAY CAUSE IRRITATION OF THE UPPER RESPIRATORY TRACT,
FATIGUE, SLEEPINESS, HEADACHE, IRRITABILITY, AND FUNCTIONAL NERVOUS
DISORDERS. CHRONIC INHALATION EXPOSURE IN ANIMALS HAS CAUSED UPPER
RESPIRATORY INFLAMMATION, NERVOUS SYSTEM DISORDERS, DYSTROPHIC CHANGES
IN THE LIVER AND KIDNEYS INCLUDING TOXIC HEPATITIS, CHANGES IN BLOOD
CHOLINESTERASE ACTIVITY, LEUKOCYTOSIS, AND RETICULOCYTOSIS. TESTICULAR
HISTOPATHOLOGY WAS OBSERVED IN RABBITS AND MONKEYS. REPRODUCTIVE
EFFECTS HAVE BEEN REPORTED IN ANIMALS; IN ONE CASE PREGNANT RATS EXPOSED
TO 100 OR 1000 PPM FOR 6 HOURS/DAY ON DAYS 1 TO 19 OF GESTATION HAD
OFFSPRING WITH A SIGNIFICANT INCREASE IN EXTRA RIB FORMATION.

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:

XYLENE:

IRRITANT.

ACUTE EXPOSURE- LIQUID XYLENE IS A DEFATTING AGENT AND MAY CAUSE A BURNING
SENSATION, DRYING, VASODILATION, ERYTHEMA, AND POSSIBLY BLISTERING. THE
LIQUID IS READILY ABSORBED THROUGH INTACT OR BROKEN SKIN AT A RATE OF
APPROXIMATELY 4-10 MG/CM2/HOUR, BUT SYSTEMIC EFFECTS HAVE NOT BEEN
REPORTED.

CHRONIC EXPOSURE- REPEATED OR PROLONGED CONTACT MAY CAUSE DEFATTING OF THE
SKIN WITH DRYING, ERYTHEMA, CRACKING, THICKENING AND BLISTERING. REPEATED
APPLICATION OF 95% XYLENE TO RABBIT SKIN CAUSED MODERATE TO MARKED
IRRITATION WITH ERYTHEMA AND MODERATE NECROSIS. ONE CASE OF ALLERGIC
CONTACT URTICARIA HAS BEEN REPORTED.

ETHYL BENZENE:

IRRITANT/NARCOTIC.

ACUTE EXPOSURE- LIQUID OR VAPOR MAY, DEPENDING ON CONCENTRATION AND LENGTH
OF EXPOSURE, CAUSE IRRITATION, INFLAMMATION, AND POSSIBLY 1ST OR 2ND
DEGREE BURNS. ETHYL BENZENE WAS ABSORBED AT A RATE OF 22-33 MG/CM2/HOUR
ON THE HAND AND FOREARM OF HUMAN SUBJECTS AND COULD POSSIBLY CAUSE
SYSTEMIC TOXICITY AS IN INHALATION. CONTACT WITH RABBIT SKIN BY THE
LIQUID CAUSED ERYTHEMA, EXFOLIATION AND VESICULATION.
CHRONIC EXPOSURE- REPEATED OR PROLONGED EXPOSURE MAY CAUSE RASH OR
DERMATITIS BY DEFATTING THE SKIN. ADMINISTRATION TO RABBITS CAUSED EFFECTS
RANGING FROM REDDENING AND MODERATE IRRITATION TO SLIGHT NECROSIS,
EXFOLIATION, AND BLISTERING.

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:

XYLENE:

IRRITANT.

ACUTE EXPOSURE- 200 PPM HAS CAUSED CONJUNCTIVAL IRRITATION IN HUMANS; AT
HIGHER CONCENTRATIONS, IRRITATION MAY BE SEVERE. VAPOR EXPOSURE HAS ALSO
CAUSED TEARING AND PHOTOPHOBIA. AN ACCIDENTAL SPLASH IN THE HUMAN EYE
CAUSED TRANSIENT SUPERFICIAL DAMAGE WITH RAPID RECOVERY, ALTHOUGH
REVERSIBLE CORNEAL BURNS HAVE ALSO BEEN REPORTED.
CHRONIC EXPOSURE- REPEATED OR PROLONGED EXPOSURE TO HIGH VAPOR
CONCENTRATIONS MAY CAUSE A BURNING SENSATION, CONJUNCTIVITIS AND BLURRED
VISION. REVERSIBLE VACUOLAR, EPITHELIAL KERATOPATHY HAS BEEN REPORTED IN
SOME WORKERS.

ETHYL BENZENE:

IRRITANT.

DATE: 08/14/93

ACCT: 888235-01

PAGE: 5

INDEX: N/A

CAT NO: X3S4

PO NBR: N/A

ACUTE EXPOSURE- CAN CAUSE IRRITATION AT LEVELS OF 200 PPM WHICH USUALLY PROVIDES SOME WARNING OF DANGEROUS CONCENTRATIONS. IRRITATION AND LACRIMATION MAY OCCUR ABOVE 1000 PPM, WITH TOLERANCE DEVELOPING QUICKLY, AND MAY BE SEVERE ABOVE 2000 PPM. AT 5000 PPM, IRRITATION IS INTOLERABLE. 2 DROPS OF THE LIQUID IN THE EYE OF A RABBIT CAUSED SLIGHT CONJUNCTIVAL IRRITATION AND SLIGHT CORNEAL INJURY; GUINEA PIGS SHOWED EYE IRRITATION AFTER 8 MINUTES AT 1000 PPM AND AFTER 1 MINUTE AT 2000 PPM, WITH IMMEDIATE, INTENSE IRRITATION OF THE CONJUNCTIVA AT 5000-10000 PPM. CHRONIC EXPOSURE- REPEATED OR PROLONGED EXPOSURE MAY CAUSE CONJUNCTIVITIS. IN ONE REPORT WORKERS EXPOSED TO 0.8-1.2 MG/L AIR FOR MORE THAN EIGHTEEN MONTHS COMPLAINED OF REDUCED VISION IN DIM LIGHT.

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:

XYLENE:
NARCOTIC.

ACUTE EXPOSURE- MAY CAUSE A BURNING SENSATION IN THE MOUTH AND STOMACH, SALIVATION, SEVERE GASTROINTESTINAL DISTRESS WITH NAUSEA AND VOMITING, POSSIBLY HEMATEMESIS, AND TOXIC EFFECTS INCLUDING SIGNS OF CENTRAL NERVOUS SYSTEM DEPRESSION AND OTHER SYMPTOMS AS IN ACUTE INHALATION, INCLUDING VENTRICULAR FIBRILLATION AND LIVER AND KIDNEY INJURY. INGESTION OF SMALL QUANTITIES OF 90% XYLENE PLUS TOLUENE PRODUCED URINARY DEXTROSE AND UROBILINOGEN EXCRETION WITH TOXIC HEPATITIS, WHICH WAS REVERSIBLE IN 20 DAYS. A DOSE OF 15-30 MILLILITERS (ABOUT 1/2-1 OUNCE) IS THE EXPECTED HUMAN LETHAL DOSE. WITH ASPIRATION OF EVEN A FEW MILLILITERS INTO THE LUNGS, SEVERE COUGHING, DISTRESS, CHEMICAL PNEUMONITIS, RAPIDLY DEVELOPING PULMONARY EDEMA, AND HEMORRHAGE MAY OCCUR. CHRONIC EXPOSURE- NO DATA AVAILABLE ON THE ORTHO-ISOMER. REPEATED INGESTION OF THE MIXED, META- OR PARA-ISOMERS BY PREGNANT MICE RESULTED IN EFFECTS ON FERTILITY, ON THE EMBRYO OR FETUS, OR SPECIFIC DEVELOPMENTAL ABNORMALITIES. INCLUDED AMONG THESE EFFECTS WERE FETOTOXICITY, LITTER SIZE, CRANIOFACIAL AND MUSCULOSKELETAL SYSTEM ABNORMALITIES, AND POST-IMPLANTATION MORTALITY.

ETHYL BENZENE:

ACUTE EXPOSURE- MAY CAUSE ABDOMINAL PAIN, NAUSEA, AND VOMITING WHICH MAY LEAD TO ASPIRATION WITH EXTENSIVE EDEMA AND HEMORRHAGE OF LUNG TISSUE. ASPIRATION BY RATS CAUSED IMMEDIATE DEATH BY CARDIAC ARREST AND RESPIRATORY PARALYSIS.

CHRONIC EXPOSURE- INGESTION OF 408-680 MG/KG/DAY FOR 182 DAYS BY RATS CAUSED SLIGHT LIVER AND KIDNEY WEIGHT INCREASES WITH SLIGHT PATHOLOGICAL SIGNS.

FIRST AID- EXTREME CARE MUST BE USED TO PREVENT ASPIRATION. GASTRIC LAVAGE WITH A CUFFED ENDOTRACHEAL TUBE IN PLACE TO PREVENT FURTHER ASPIRATION SHOULD BE DONE WITHIN 15 MINUTES. IN THE ABSENCE OF DEPRESSION OR CONVULSIONS OR IMPAIRED GAG REFLEX, EMESIS CAN ALSO BE INDUCED USING SYRUP OF IPECAC WITHOUT INCREASING THE HAZARD OF ASPIRATION (DREISBACH, HANDBOOK OF POISONING, 12TH ED.) TREAT SYMPTOMATICALLY AND SUPPORTIVELY. 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:

XYLENE:

NITRIC ACID: EXOTHERMIC REACTION.
OXIDIZERS (STRONG): FIRE AND EXPLOSION HAZARD.
PLASTICS, RUBBER, COATINGS: MAY BE ATTACKED.
SULFURIC ACID: EXOTHERMIC REACTION.

ETHYL BENZENE:

ACIDS (STRONG): POSSIBLE VIOLENT REACTION.
AMMONIA: POSSIBLE VIOLENT REACTION.
BASES (STRONG): POSSIBLE VIOLENT REACTION.
OXIDIZERS (STRONG): FIRE AND EXPLOSION HAZARD.
PLASTICS: MAY BE ATTACKED.

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.

PAGE: 6

DATE: 08/14/93

ACCT: 888235-01

INDEX: N/A

CAT NO: X3S4

PO NBR: N/A

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.

PROTECT AGAINST PHYSICAL DAMAGE. OUTSIDE OR DETACHED STORAGE IS PREFERABLE. INSIDE STORAGE SHOULD BE IN A STANDARD FLAMMABLE LIQUIDS STORAGE ROOM OR CABINET, SEPARATE FROM OXIDIZING MATERIALS (NFPA 49, HAZARDOUS CHEMICALS DATA, 1975).

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 U239.

CONDITIONS TO AVOID

AVOID CONTACT WITH HEAT, SPARKS, FLAMES, OR OTHER SOURCES OF IGNITION. VAPORS MAY BE EXPLOSIVE. AVOID OVERHEATING OF CONTAINERS; CONTAINERS MAY VIOLENTLY RUPTURE IN HEAT OF FIRE. AVOID CONTAMINATION OF WATER SOURCES.

SPILL AND LEAK PROCEDURES

SOIL SPILL:

DIG A HOLDING AREA SUCH AS A PIT, POND OR LAGOON TO CONTAIN SPILL AND DIKE SURFACE FLOW USING BARRIER OF SOIL, SANDBAGS, FOAMED POLYURETHANE OR FOAMED CONCRETE. ABSORB LIQUID MASS WITH FLY ASH OR CEMENT POWDER.

IMMOBILIZE SPILL WITH UNIVERSAL GELLING AGENT.

REDUCE VAPOR AND FIRE HAZARD WITH APPROPRIATE FOAM.

AIR SPILL:

KNOCK DOWN VAPORS WITH WATER SPRAY. KEEP UPWIND.

WATER SPILL:

LIMIT SPILL MOTION AND DISPERSION WITH NATURAL BARRIERS OR OIL SPILL CONTROL BOOMS.

APPLY DETERGENTS, SOAPS, ALCOHOLS OR ANOTHER SURFACE ACTIVE AGENT.

APPLY UNIVERSAL GELLING AGENT TO IMMOBILIZE TRAPPED SPILL AND INCREASE EFFICIENCY OF REMOVAL.

IF DISSOLVED, AT A CONCENTRATION OF 10 PPM OR GREATER, APPLY ACTIVATED CARBON AT TEN TIMES THE AMOUNT THAT HAS BEEN SPILLED.

USE SUCTION HOSES TO REMOVE TRAPPED SPILL MATERIAL.

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

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 RESTRICT ENTRY.

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:

PROVIDE LOCAL EXHAUST OR GENERAL DILUTION VENTILATION 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

DATE: 08/14/93

ACCT: 888235-01

INDEX: N/A

CAT NO: X354

PO NBR: N/A

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).

XYLENE (O-, M-, AND P-ISOMERS):
1000 PPM- ANY CHEMICAL CARTRIDGE RESPIRATOR WITH ORGANIC VAPOR CARTRIDGE(S).
ANY POWERED AIR-PURIFYING RESPIRATOR WITH ORGANIC VAPOR CARTRIDGE(S).
ANY SUPPLIED-AIR RESPIRATOR.
ANY SELF-CONTAINED BREATHING APPARATUS.

ESCAPE- ANY AIR-PURIFYING FULL FACEPIECE RESPIRATOR (GAS MASK) WITH A CHIN-STYLE OR 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.

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