

MATERIAL SAFETY DATA SHEET

EM SCIENCE

-1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURER.....:

PREPARATION DATE.: 02/16/93
DATE MSDS PRINTED.: APR 19, 1993

EM SCIENCE
A DIVISION OF EM INDUSTRIES
P.O. BOX 70
480 DEMOCRAT RD.
GIBBSTOWN, N.J. 08027

INFORMATION PHONE NUMBER.: 609-354-9200
HOURS: MON. TO FRI. 8:30-5
CHEMTREC EMERGENCY NUMBER: 800-424-9300
HOURS: 24 HRS A DAY

CATALOG NUMBER(S):

EX0184 EX0185 EX0190 EX0195

CHEMICAL NAME.....:

ETHER

TRADE NAME.....:

ETHYL ETHER, DIETHYL ETHER, ETHYL OXIDE

CHEMICAL FAMILY.: ETHER

FORMULA.....:

(C2H5)2O

MOLECULAR WEIGHT.: 74.12

-2. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS #	APPR %
ETHER	60-29-7	100%

CONTAINS 1 PPM 2,6-DI-TERT-BUTYL-P-CRESOL (CAS# 128-37-0) AS STABILIZER.
EX0185 AND EX0195 ALSO CONTAINS APPROXIMATELY 2% ETHYL ALCOHOL (CAS# 64-17-5).

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

EXTREMELY FLAMMABLE LIQUID AND VAPOR.
TENDS TO FORM EXPLOSIVE PEROXIDES ESPECIALLY WHEN ANHYDROUS.
HARMFUL IF INHALED OR SWALLOWED.
CAUSES DEPRESSION OF CENTRAL NERVOUS SYSTEM.
MAY CAUSE DAMAGE TO LIVER, KIDNEYS, AND RESPIRATORY SYSTEM.
IRRITATING TO SKIN, EYES AND MUCOUS MEMBRANES.
MAY CAUSE EYE INJURY.

APPEARANCE.....:

COLORLESS LIQUID; CHARACTERISTIC SWEET ODOR

POTENTIAL HEALTH EFFECTS (ACUTE AND CHRONIC)

SYMPTOMS OF EXPOSURE:

HARMFUL IF INHALED OR SWALLOWED.
IRRITATING ON CONTACT WITH SKIN, EYES OR MUCOUS MEMBRANES.
IT IS A DEPRESSANT OF THE CENTRAL NERVOUS SYSTEM AND IS CAPABLE OF
PRODUCING INTOXICATION, DROWSINESS, STUPOR AND UNCONSCIOUSNESS.
DEATH DUE TO RESPIRATORY FAILURE MAY RESULT FROM SEVERE AND CONTINUED
EXPOSURE.

MEDICAL COND. AGGRAVATED BY EXPOSURE:

PRE-EXISTING SKIN DISORDERS, EYE
PROBLEMS OR IMPAIRED KIDNEY, LIVER OR RESPIRATORY FUNCTIONS.
ALCOHOLIC
BEVERAGE CONSUMPTION CAN ENHANCE THE TOXIC EFFECTS OF THIS SUBSTANCE.

ROUTES OF ENTRY.....:

INHALATION OR INGESTION

CARCINOGENICITY.....:

THE MATERIAL IS NOT LISTED (IARC, NTP, OSHA) AS CANCER CAUSING
AGENT.

4. FIRST AID MEASURES

EMERGENCY FIRST AID:

GET MEDICAL ASSISTANCE FOR ALL CASES OF OVEREXPOSURE.
SKIN: IMMEDIATELY FLUSH THOROUGHLY WITH LARGE AMOUNTS OF WATER.
EYES: IMMEDIATELY FLUSH THOROUGHLY WITH WATER FOR AT LEAST 15
MINUTES.
INHALATION: REMOVE TO FRESH AIR; GIVE ARTIFICIAL RESPIRATION IF
BREATHING HAS STOPPED.
INGESTION: IF CONSCIOUS, DRINK WATER AND INDUCE VOMITING
IMMEDIATELY AS DIRECTED BY MEDICAL PERSONNEL. NEVER GIVE ANYTHING
BY MOUTH TO AN UNCONSCIOUS PERSON.

5. FIRE FIGHTING MEASURES

FLASH POINT (F).....: -49F (CC)

FLAMMABLE LIMITS LEL (%): 1.90

FLAMMABLE LIMITS UEL (%): 36.00

EXTINGUISHING MEDIA.....:

ALCOHOL FOAM, CARBON DIOXIDE, DRY CHEMICAL.
USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL.

FIRE FIGHTING PROCEDURES.:

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING.

FIRE & EXPLOSION HAZARDS.:

DANGEROUS FIRE AND EXPLOSIVE HAZARD.

MAY FORM EXPLOSIVE PEROXIDES, ESPECIALLY WHEN HEATED.

CLOSED CONTAINERS MAY EXPLODE WHEN EXPOSED TO HEAT.

VAPOR CAN TRAVEL DISTANCES TO IGNITION SOURCE AND FLASH BACK.

6. ACCIDENTAL RELEASE MEASURES

SPILL RESPONSE:

EVACUATE THE AREA OF ALL UNNECESSARY PERSONNEL.

WEAR SUITABLE PROTECTIVE EQUIPMENT LISTED UNDER EXPOSURE / PERSONAL PROTECTION.

ELIMINATE ANY IGNITION SOURCES UNTIL THE AREA IS DETERMINED TO BE FREE FROM EXPLOSION OR FIRE HAZARDS.

CONTAIN THE RELEASE AND ELIMINATE ITS SOURCE, IF THIS CAN BE DONE WITHOUT RISK.

TAKE UP AND CONTAINERIZE FOR PROPER DISPOSAL AS DESCRIBED UNDER DISPOSAL.

COMPLY WITH FEDERAL, STATE, AND LOCAL REGULATIONS ON REPORTING RELEASES. REFER TO REGULATORY INFORMATION FOR REPORTABLE QUANTITY AND OTHER REGULATORY DATA.

EM SCIENCE RECOMMENDS SPILL-X ABSORBENT AGENTS FOR VARIOUS TYPES OF SPILLS. ADDITIONAL INFORMATION ON THE SPILL-X PRODUCTS CAN BE PROVIDED THROUGH THE EM SCIENCE TECHNICAL SERVICE DEPARTMENT (609) 354-9200.

THE FOLLOWING EM SCIENCE SPILL-X ABSORBENT IS RECOMMENDED FOR THIS PRODUCT:

SX0863

SOLVENT SPILL TREATMENT KIT

7. HANDLING AND STORAGE

HANDLING & STORAGE:

KEEP CONTAINER TIGHTLY CLOSED.

STORE IN A COOL, DRY AREA AWAY FROM IGNITION SOURCES AND OXIDIZERS.

CHECK PEROXIDE CONTENT BEFORE HEATING MATERIAL.

DO NOT BREATHE DUST OR VAPOR.

DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING.

ELECTRICALLY GROUND ALL EQUIPMENT WHEN HANDLING THIS PRODUCT.

RETAINED RESIDUE MAY MAKE EMPTY CONTAINERS HAZARDOUS; USE CAUTION!

PROTECT AGAINST PHYSICAL DAMAGE AND DIRECT SUNLIGHT.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT:

VENTILATION, RESPIRATORY PROTECTION, PROTECTIVE CLOTHING, EYE PROTECTION MATERIAL MUST BE HANDLED OR TRANSFERRED IN AN APPROVED FUME HOOD OR WITH EQUIVALENT VENTILATION.

PROTECTIVE GLOVES MUST BE WORN TO PREVENT SKIN CONTACT (NITRILE OR EQUIVALENT)

SAFETY GLASSES WITH SIDE SHIELDS MUST BE WORN AT ALL TIMES.

RESPIRATORY PROTECTION: IF WORKPLACE EXPOSURE LIMIT(S) OF PRODUCT OR ANY COMPONENT IS EXCEEDED (SEE TLV/PEL), A NIOSH/MSHA APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS (NEGATIVE PRESSURE TYPE) UNDER SPECIFIED CONDITIONS (SEE YOUR SAFETY EQUIPMENT SUPPLIER). ENGINEERING AND/OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.

IMPERVIOUS PROTECTIVE CLOTHING SHOULD BE WORN TO PREVENT SKIN CONTACT.

WORK / HYGENIC PRACTICES:

WASH THOROUGHLY AFTER HANDLING.

DO NOT TAKE INTERNALLY.

EYE WASH AND SAFETY EQUIPMENT SHOULD BE READILY AVAILABLE.

EXPOSURE GUIDELINES

OSHA - PEL:

COMPONENT	TWA		STEL		CL		SKIN
	PPM	MG/M3	PPM	MG/M3	PPM	MG/M3	
ETHER	400	1200	500	1500			

ACGIH - TLV:

COMPONENT	TWA		STEL		CL		SKIN
	PPM	MG/M3	PPM	MG/M3	PPM	MG/M3	
ETHER	400	1210	500	1520			

9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT (C 760 MMHG): 35C
 MELTING POINT (C): -123C
 SPECIFIC GRAVITY (H2O = 1): 0.71
 VAPOR PRESSURE (MM HG): 442 20C
 PERCENT VOLATILE BY VOL (%): 100
 VAPOR DENSITY (AIR = 1): 2.6
 EVAPORATION RATE (BUAC = 1): 37.5

SOLUBILITY IN WATER (%): SOLUBLE
APPEARANCE: COLORLESS LIQUID; CHARACTERISTIC SWEET ODOR

10. STABILITY AND REACTIVITY

STABILITY: YES

HAZARDOUS POLYMERIZATION:
DOES NOT OCCUR

HAZARDOUS DECOMPOSITION:
CARBON MONOXIDE

CONDITIONS TO AVOID:

HEAT; CONTACT WITH IGNITION SOURCE, LIGHT, AIR.
EVAPORATING TO NEAR DRYNESS.

MATERIALS TO AVOID:

- () WATER
- () ACIDS
- () BASES
- () CORROSIVES
- (X) OXIDIZERS
- (X) OTHER :
ACETYL PEROXIDE, LIQUID AIR, BROMOAZIDE, CHLORINE

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA:

ORL-RAT LD50: 1215 MG/KG
ORL-MAN LDLO: 260 MG/KG
IHL-RAT LC50: 73000 PPM/2H

TOXICOLOGICAL FINDINGS:

TESTS ON LABORATORY ANIMALS INDICATE MATERIAL MAY PRODUCE ADVERSE
MUTAGENIC EFFECTS.
CITED IN REGISTRY OF TOXIC EFFECTS OF SUBSTANCES (RTECS)

12. DISPOSAL CONSIDERATIONS

EPA WASTE NUMBERS: U117 D001

TREATMENT:

INCINERATION, FUELS BLENDING OR RECYCLE. CONTACT YOUR LOCAL
PERMITTED WASTE DISPOSAL SITE (TSD) FOR PERMISSIBLE TREATMENT
SITES.

ALWAYS CONTACT A PERMITTED WASTE DISPOSER (TSD) TO ASSURE

COMPLIANCE WITH ALL CURRENT LOCAL, STATE AND FEDERAL REGULATIONS.

13. TRANSPORT INFORMATION

DOT PROPER SHIPPING NAME...:
ETHYL ETHER

DOT ID NUMBER.....: UN1155

14. REGULATORY INFORMATION

TSCA INVENTORY.....:

THIS PRODUCT IS A "MIXTURE". THE CAS NUMBERS OF ALL COMPONENTS
ARE LISTED ON THE TSCA INVENTORY.

COMPONENT	SARA EHS (302)	SARA EHS TPQ (LBS)	CERCLA RQ (LBS)
ETHER			100

COMPONENT	OSHA FLOOR LIST	SARA 313	DEMINIMIS FOR SARA 313 (%)
ETHER	Y		

15. OTHER INFORMATION

COMMENTS:

NONE

NFPA HAZARD RATINGS:

HEALTH : 2
FLAMMABILITY : 4
REACTIVITY : 1
SPECIAL HAZARDS :

REVISION HISTORY:

08/01/81 02/05/87 10/27/87 07/25/89 03/01/91 02/06/92 12/04/92

- = REVISED SECTION

N/A = NOT AVAILABLE

N/E = NONE ESTABLISHED

THE STATEMENTS CONTAINED HEREIN ARE OFFERED FOR INFORMATIONAL PURPOSES
MSDS (CONTINUED) - EX0184 PAGE # 6

ONLY AND ARE BASED UPON TECHNICAL DATA THAT EM SCIENCE BELIEVES TO BE ACCURATE. IT IS INTENDED FOR USE ONLY BY PERSONS HAVING THE NECESSARY TECHNICAL SKILL AND AT THEIR OWN DESCRETION AND RISK. SINCE CONDITIONS AND MANNER OF USE ARE OUTSIDE OUR CONTROL, WE MAKE NO WARRANTY, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE.

PORTIONS COPYRIGHT ARIEL RESEARCH CORPORATION, 1991. RESTRICTED USE CONDITIONS APPLY. SELECTED REGULATORY INFORMATION IN THIS MSDS HAS BEEN DERIVED FROM ARIEL RESEARCH CORPORATION'S INTERNATIONAL CHEMICAL REGULATORY MONITORING SYSTEM (ICRMS). USE OF THIS DATA IS PROVIDED SUBJECT TO THE TERMS OF THE LICENSE AGREEMENT BETWEEN EM INDUSTRIES AND ARIEL RESEARCH CORPORATION. FURTHER DISTRIBUTION IS PROHIBITED WITHOUT AUTHORIZATION.

MSDS - EX0184

PAGE # 7