

J.T.BAKER INC. 222 RED SCHOOL LANE, PHILLIPSBURG, NJ 08865
 MATERIAL SAFETY DATA SHEET
 24-HOUR EMERGENCY TELEPHONE -- (201) 859-2151
 CHEMTREC # (800) 424-9300 -- NATIONAL RESPONSE CENTER # (800) 424-8802

E2355 -04

ETHER

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EFFECTIVE: 05/01/89

ISSUED: 05/16/89

J.T.BAKER INC., 222 RED SCHOOL LANE, PHILLIPSBURG, NJ 08865

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 SECTION I - PRODUCT IDENTIFICATION
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PRODUCT NAME: ETHER
 COMMON SYNONYMS: DIETHYL ETHER; ETHYL ETHER; 1,1'-OXYBISETHANE
 CHEMICAL FAMILY: ETHERS
 FORMULA: (C₂H₅)₂O
 FORMULA WT.: 74.12
 CAS NO.: 60-29-7
 NIOSH/RTECS NO.: KI5775000
 PRODUCT USE: LABORATORY REAGENT
 PRODUCT CODES: 9253, 9249, 5486, 9241, 5498, 9251, 9240, 9252, 9239

 =====
 PRECAUTIONARY LABELING
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BAKER SAF-T-DATA* SYSTEM

HEALTH	-	2	MODERATE
FLAMMABILITY	-	4	EXTREME (FLAMMABLE)
REACTIVITY	-	2	MODERATE
CONTACT	-	2	MODERATE

LABORATORY PROTECTIVE EQUIPMENT

GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER

U.S. PRECAUTIONARY LABELING

DANGER

CAUSES IRRITATION. EXTREMELY FLAMMABLE. HIGHLY VOLATILE. HARMFUL IF SWALLOWED, INHALED, OR ABSORBED THROUGH SKIN. TENDS TO FORM EXPLOSIVE PEROXIDES, ESPECIALLY WHEN ANHYDROUS.
 KEEP AWAY FROM HEAT, SPARKS, FLAME. AVOID CONTACT WITH EYES, SKIN, CLOTHING. AVOID BREATHING VAPOR. KEEP IN TIGHTLY CLOSED CONTAINER. USE WITH ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING. IN CASE OF FIRE, USE ALCOHOL FOAM, DRY CHEMICAL, CARBON DIOXIDE - WATER MAY BE INEFFECTIVE. IN CASE OF SPILL, SOAK UP WITH SAND OR EARTH. FLUSH SPILL AREA WITH WATER.

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SECTION IV - FIRE AND EXPLOSION HAZARD DATA
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FLASH POINT (CLOSED CUP): -44 C (-49 F) NFPA 704M RATING: 2-4-1

AUTOIGNITION TEMPERATURE: 179 C (356 F)

FLAMMABLE LIMITS: UPPER - 36 % LOWER - 1.9 %

FIRE EXTINGUISHING MEDIA

USE ALCOHOL FOAM, DRY CHEMICAL OR CARBON DIOXIDE. (WATER MAY BE INEFFECTIVE.)

SPECIAL FIRE-FIGHTING PROCEDURES

FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE. MOVE CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL.

UNUSUAL FIRE & EXPLOSION HAZARDS

VAPORS MAY FLOW ALONG SURFACES TO DISTANT IGNITION SOURCES AND FLASH BACK. CLOSED CONTAINERS EXPOSED TO HEAT MAY EXPLODE. CONTACT WITH STRONG OXIDIZERS MAY CAUSE FIRE. MAY FORM EXPLOSIVE PEROXIDES, ESPECIALLY WHEN HEATED. FORMS SHOCK-SENSITIVE MIXTURES WITH CERTAIN OTHER MATERIALS.

TOXIC GASES PRODUCED

CARBON MONOXIDE, CARBON DIOXIDE

EXPLOSION DATA-SENSITIVITY TO MECHANICAL IMPACT

NONE IDENTIFIED.

EXPLOSION DATA-SENSITIVITY TO STATIC DISCHARGE

NONE IDENTIFIED.

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SECTION V - HEALTH HAZARD DATA
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THRESHOLD LIMIT VALUE (TLV/TWA): 1200 MG/M3 (400 PPM)

SHORT-TERM EXPOSURE LIMIT (STEL): 1500 MG/M3 (500 PPM)

PERMISSIBLE EXPOSURE LIMIT (PEL): 1200 MG/M3 (400 PPM)

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SECTION V - HEALTH HAZARD DATA (CONTINUED)

TOXICITY OF COMPONENTS

ORAL RAT LD50 FOR DIETHYL ETHER	1215 MG/KG
INTRAVENOUS MOUSE LD50 FOR DIETHYL ETHER	996 MG/KG
INTRAPERITONEAL MOUSE LD50 FOR DIETHYL ETHER	2420 MG/KG
INHALATION-2HR RAT LC50 FOR DIETHYL ETHER	73.0 PPT
ORAL RAT LD50 FOR ETHANOL	7060 MG/KG
INTRAPERITONEAL RAT LD50 FOR ETHANOL	4070 MG/KG
INTRAVENOUS RAT LD50 FOR ETHANOL	1440 MG/KG
INHALATION-4HR MOUSE LC50 FOR ETHANOL	39 G/M3

CARCINOGENICITY: NTP: NO IARC: NO Z LIST: NO OSHA REG: NO

CARCINOGENICITY
NONE IDENTIFIED.

REPRODUCTIVE EFFECTS
NONE IDENTIFIED.

EFFECTS OF OVEREXPOSURE

INHALATION: CENTRAL NERVOUS SYSTEM DEPRESSION, HEADACHE, NAUSEA,
 VOMITING, DROWSINESS, IRRITATION OF UPPER RESPIRATORY
 TRACT, JAUNDICE, LIVER DAMAGE, UNCONSCIOUSNESS

SKIN CONTACT: IRRITATION, PROLONGED CONTACT MAY CAUSE SKIN
 SENSITIZATION

EYE CONTACT: IRRITATION

SKIN ABSORPTION: RAPID ABSORPTION, CENTRAL NERVOUS SYSTEM DEPRESSION,
 HEADACHE, NAUSEA, VOMITING, DROWSINESS, JAUNDICE, LIVER
 DAMAGE

INGESTION: CENTRAL NERVOUS SYSTEM DEPRESSION, HEADACHE, NAUSEA,
 VOMITING, DROWSINESS, NERVOUSNESS, JAUNDICE, LIVER
 DAMAGE, HEART FAILURE, RESPIRATORY FAILURE,
 UNCONSCIOUSNESS

CHRONIC EFFECTS: CENTRAL NERVOUS SYSTEM DEPRESSION

TARGET ORGANS
CENTRAL NERVOUS SYSTEM, EYES, SKIN, MUCOUS MEMBRANES, RESPIRATORY SYSTEM,
LUNGS, HEART, LIVER

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SECTION V - HEALTH HAZARD DATA (CONTINUED)

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MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE
NONE IDENTIFIED

PRIMARY ROUTES OF ENTRY
INHALATION, INGESTION, EYE CONTACT, SKIN CONTACT, ABSORPTION

EMERGENCY AND FIRST AID PROCEDURES

INGESTION: CALL A PHYSICIAN. IF SWALLOWED, DO NOT INDUCE VOMITING. IF
CONSCIOUS, GIVE LARGE AMOUNTS OF WATER.

INHALATION: IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE
ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE
OXYGEN.

SKIN CONTACT: IN CASE OF CONTACT, IMMEDIATELY FLUSH SKIN WITH PLENTY OF
WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED
CLOTHING AND SHOES. WASH CLOTHING BEFORE RE-USE.

EYE CONTACT: IN CASE OF EYE CONTACT, IMMEDIATELY FLUSH WITH PLENTY OF
WATER FOR AT LEAST 15 MINUTES.

SARA/TITLE III HAZARD CATEGORIES AND LISTS

ACUTE: YES CHRONIC: YES FLAMMABILITY: YES PRESSURE: NO REACTIVITY: NO

EXTREMELY HAZARDOUS SUBSTANCE: NO
CERCLA HAZARDOUS SUBSTANCE: YES CONTAINS ETHANE, 1,1'-OXYBIS- (RQ = 100
LBS)
TOXIC CHEMICALS: NO
TSCA INVENTORY: YES

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SECTION VI - REACTIVITY DATA

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STABILITY: STABLE HAZARDOUS POLYMERIZATION: WILL NOT OCCUR
CONDITIONS TO AVOID: HEAT, FLAME, OTHER SOURCES OF IGNITION, LIGHT, AIR
INCOMPATIBLES: STRONG BASES, STRONG OXIDIZING AGENTS

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SECTION VI - REACTIVITY DATA (CONTINUED)

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DECOMPOSITION PRODUCTS: EXPLOSIVE PEROXIDES, CARBON MONOXIDE, CARBON DIOXIDE

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SECTION VII - SPILL & DISPOSAL PROCEDURES

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STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE

WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. SHUT OFF IGNITION SOURCES; NO FLARES, SMOKING OR FLAMES IN AREA. STOP LEAK IF YOU CAN DO SO WITHOUT RISK. USE WATER SPRAY TO REDUCE VAPORS. TAKE UP WITH SAND OR OTHER NON-COMBUSTIBLE ABSORBENT MATERIAL AND PLACE INTO CONTAINER FOR LATER DISPOSAL. FLUSH AREA WITH WATER.

J. T. BAKER SOLUSORB(R) SOLVENT ADSORBENT IS RECOMMENDED FOR SPILLS OF THIS PRODUCT.

DISPOSAL PROCEDURE

DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS.

EPA HAZARDOUS WASTE NUMBER: U117 (TOXIC WASTE)

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SECTION VIII - INDUSTRIAL PROTECTIVE EQUIPMENT

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VENTILATION: USE GENERAL OR LOCAL EXHAUST VENTILATION TO MEET TLV REQUIREMENTS.

RESPIRATORY PROTECTION: RESPIRATORY PROTECTION REQUIRED IF AIRBORNE CONCENTRATION EXCEEDS TLV. AT CONCENTRATIONS UP TO 1000 PPM, A CHEMICAL CARTRIDGE RESPIRATOR WITH ORGANIC VAPOR CARTRIDGE IS RECOMMENDED. ABOVE THIS LEVEL, A SELF-CONTAINED BREATHING APPARATUS IS RECOMMENDED.

EYE/SKIN PROTECTION: SAFETY GOGGLES, UNIFORM, APRON, NITRILE GLOVES ARE RECOMMENDED.

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SECTION IX - STORAGE AND HANDLING PRECAUTIONS
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SAF-T-DATA* STORAGE COLOR CODE: RED (FLAMMABLE)

STORAGE REQUIREMENTS

KEEP CONTAINER TIGHTLY CLOSED. STORE IN A COOL, DRY, WELL-VENTILATED,
FLAMMABLE LIQUID STORAGE AREA. ISOLATE FROM INCOMPATIBLE MATERIALS.

SPECIAL PRECAUTIONS

BOND AND GROUND CONTAINERS WHEN TRANSFERRING LIQUID. ETHER IS SUBJECT TO
PEROXIDE FORMATION IN OPENED CONTAINERS AND SHOULD BE PROTECTED FROM
EXPOSURE TO AIR AS MUCH AS POSSIBLE. WHEN LOW PEROXIDE ETHER IS REQUIRED,
USE ONLY MATERIAL FROM A PREVIOUSLY UNOPENED CAN. DO NOT ALLOW TO
EVAPORATE TO NEAR DRYNESS. ADDITION OF WATER OR APPROPRIATE REDUCING
AGENTS WILL LESSEN PEROXIDE FORMATION. DISCARD ANY REMAINING ETHER IN
OPENED CONTAINERS THAT IS NOT CONSUMED AFTER 2-3 DAYS. USE CAUTION WHEN
OPENING CAP. IMPORTANT - DO NOT USE AFTER EXPIRATION DATE.

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SECTION X - TRANSPORTATION DATA AND ADDITIONAL INFORMATION
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DOMESTIC (D.O.T.)

PROPER SHIPPING NAME: ETHYL ETHER
HAZARD CLASS: FLAMMABLE LIQUID
UN/NA: UN1155
LABELS: FLAMMABLE LIQUID
REGULATORY REFERENCES: 49CFR 172.101; 173.119

INTERNATIONAL (I.M.O.)

PROPER SHIPPING NAME: DIETHYL ETHER
HAZARD CLASS: 3.1 I.M.O. PAGE: 3029
UN: UN1155 MARINE POLLUTANTS: NO PACKAGING GROUP: I
LABELS: FLAMMABLE LIQUID
REGULATORY REFERENCES: 49CFR 172.102; PART 176; IMO

AIR (I.C.A.O.)

PROPER SHIPPING NAME: DIETHYL ETHER
HAZARD CLASS: 3.1
UN: UN1155 PACKAGING GROUP: I
LABELS: FLAMMABLE LIQUID
REGULATORY REFERENCES: 49CFR 172.101; 173.6; PART 175; ICAO/IATA

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SECTION X - TRANSPORTATION DATA AND ADDITIONAL INFORMATION (CONTINUED)
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U.S. CUSTOMS HARMONIZATION NUMBER: 29091100005

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N/A = NOT APPLICABLE OR NOT AVAILABLE
N/E = NOT ESTABLISHED

THE INFORMATION IN THIS MATERIAL SAFETY DATA SHEET MEETS THE REQUIREMENTS OF THE UNITED STATES OCCUPATIONAL SAFETY AND HEALTH ACT AND REGULATIONS PROMULGATED THEREUNDER (29 CFR 1910.1200 ET. SEQ.) AND THE CANADIAN WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM. THIS DOCUMENT IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONARY HANDLING OF THE MATERIAL BY A PERSON TRAINED IN, OR SUPERVISED BY A PERSON TRAINED IN, CHEMICAL HANDLING. THE USER IS RESPONSIBLE FOR DETERMINING THE PRECAUTIONS AND DANGERS OF THIS CHEMICAL FOR HIS OR HER PARTICULAR APPLICATION. DEPENDING ON USAGE, PROTECTIVE CLOTHING INCLUDING EYE AND FACE GUARDS AND RESPIRATORS MUST BE USED TO AVOID CONTACT WITH MATERIAL OR BREATHING CHEMICAL VAPORS/FUMES.

EXPOSURE TO THIS PRODUCT MAY HAVE SERIOUS ADVERSE HEALTH EFFECTS. THIS CHEMICAL MAY INTERACT WITH OTHER SUBSTANCES. SINCE THE POTENTIAL USES ARE SO VARIED, BAKER CANNOT WARN OF ALL OF THE POTENTIAL DANGERS OF USE OR INTERACTION WITH OTHER CHEMICALS OR MATERIALS. BAKER WARRANTS THAT THE CHEMICAL MEETS THE SPECIFICATIONS SET FORTH ON THE LABEL. BAKER DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR PURPOSE.

THE USER SHOULD RECOGNIZE THAT THIS PRODUCT CAN CAUSE SEVERE INJURY AND EVEN DEATH, ESPECIALLY IF IMPROPERLY HANDLED OR THE KNOWN DANGERS OF USE ARE NOT HEDED. READ ALL PRECAUTIONARY INFORMATION. AS NEW DOCUMENTED GENERAL SAFETY INFORMATION BECOMES AVAILABLE, BAKER WILL PERIODICALLY REVISE THIS MATERIAL SAFETY DATA SHEET. IF YOU HAVE ANY QUESTIONS, PLEASE CALL CUSTOMER SERVICE (1-800-JTBAKER) FOR ASSISTANCE.

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APPROVED BY QUALITY ASSURANCE DEPARTMENT.

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