MAT E R I A L S A F E T Y D A T A S H E E T

SECTION 1. - - - - - - - - - CHEMICAL IDENTIFICATION- - - - - - - - - -
CATALOG #: 256374
NAME: 2-ETHOXYETHANOL, 99+, SPECTROPHOTOMETRIC GRADE

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - - -
CAS #: 110-80-5
MF: C4H10O2
EC NO: 203-804-1
SYNONYMS
ATHYLENGLYKOL-MONOATHYLATHER (GERMAN) * CELLOSLOLVE (OSHA) *
CELLOSLOLVE SOLVENT * CELOSOLV (CZECH) * DOWANOL 8 * DOWANOL EE *
EKTSOLVE EE * ETHER MONOETHYLIQUE DE L'ETHYLENE-GLYCOL (FRENCH) * 2-
ETHOXYETHANOL (ACGIH:OSHA) * ETHYL CELLOSLOLVE * ETHERYLE GLYCOL ETHER
ETHER * ETHYLENE GLYCOL MONOETHYL ETHER * ETOKSYETYLOWY ALKOHOL
(POLISH) * GLYCOL MONOETHYL ETHER (OSHA) * JEFFERSOL EE * NCI-C54853 *
OXITOL * POLY-SOLV EE * RCRA WASTE NUMBER U227 * RCRA WASTE NUMBER
U359 *

SECTION 3. - - - - - - - - - HAZARDS IDENTIFICATION - - - - - - - - -
LABEL PRECAUTIONARY STATEMENTS
COMBUSTIBLE (USA)
FLAMMABLE (EU)
TOXIC
MAY CAUSE HARM TO THE UNBORN CHILD.
MAY IMPAIR FERTILITY.
HARMFUL BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.
IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.
READILY ABSORBED THROUGH SKIN.
TARGET ORGAN(S):
BLOOD
CENTRAL NERVOUS SYSTEM
LIVER
KIDNEYS
COMBUSTIBLE.
CAUSES IRRITATION.
AVOID EXPOSURE - OBTAIN SPECIAL INSTRUCTIONS BEFORE USE.
IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE
IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).

SECTION 4. - - - - - - - - - FIRST-AID MEASURES- - - - - - - - - -
IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS.
CALL A PHYSICIAN IMMEDIATELY.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL
RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IN CASE OF SKIN CONTACT, FLUSH WITH COPIOUS AMOUNTS OF WATER
FOR AT LEAST 15 MINUTES. REMOVE CONTAMINATED CLOTHING AND
SHOES. CALL A PHYSICIAN.
IN CASE OF CONTACT WITH EYES, FLUSH WITH COPIOUS AMOUNTS OF WATER
FOR AT LEAST 15 MINUTES. ASSURE ADEQUATE FLUSHING BY SEPARATING
THE EYELIDS WITH FINGERS. CALL A PHYSICIAN.

SECTION 5. - - - - - - - - - FIRE FIGHTING MEASURES - - - - - - - - - -
EXTINGUISHING MEDIA
CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.
SPECIAL FIREFIGHTING PROCEDURES
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO
PREVENT CONTACT WITH SKIN AND EYES.
UNUSUAL FIRE AND EXPLOSIONS HAZARDS
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.
COMBUSTIBLE LIQUID.

SECTION 6. - - - - - - - - - ACCIDENTAL RELEASE MEASURES - - - - - - - - -
WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY
RUBBER GLOVES.
WEAR DISPOSABLE COVERALLS AND DISCARD THEM AFTER USE.
COVER WITH AN ACTIVATED CARBON ADSORBENT, TAKE UP AND PLACE IN CLOSED
CONTAINERS. TRANSPORT OUTDOORS.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.
EVACUATE AREA.

SECTION 7. - - - - - - - - - - HANDLING AND STORAGE - - - - - - - - - -
REFER TO SECTION 8.

SECTION 8. - - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION - - - - -
USE ONLY IN A CHEMICAL FUME HOOD.
SAFETY SHOWER AND EYE BATH.
WASH CONTAMINATED CLOTHING BEFORE REUSE.
WASH THOROUGHLY AFTER HANDLING.
DO NOT BREATHE VAPOR.
DO NOT GET IN EYES, ON SKIN, ON CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
NIOSH/MSHA-APPROVED RESPIRATOR.
COMPATIBLE CHEMICAL-RESISTANT GLOVES.
CHEMICAL SAFETY GOGGLES.
KEEP TIGHTLY CLOSED.
STORE IN A COOL DRY PLACE.
KEEP AWAY FROM HEAT AND OPEN FLAME.

SECTION 9. - - - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - - - -
PHYSICAL PROPERTIES
BOILING POINT: 135 C
MELTING POINT: -90 C
FLASHPOINT: 112 F
EXPLOSION LIMITS IN AIR:
UPPER 14%
LOWER 1.8%
AUTOIGNITION TEMPERATURE: 460 F
VAPOR PRESSURE: 3.8MM 20 C
SPECIFIC GRAVITY: 0.930
VAPOR DENSITY: 3.1
SWISS POISON CLASS: 2

SECTION 10. - - - - - - - STABILITY AND REACTIVITY - - - - - - -
STABILITY
STABLE.
INCOMPATIBILITIES
OXIDIZING AGENTS
COPPER
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS
Carbon monoxide, carbon dioxide hazardous polymerization will not occur.

Section 11. - - - - - - - - - Toxicological Information - - - - - - - -

Acute Effects

In laboratory studies with this material, birth defects, fetotoxicity, embryolethality, anemia, bone marrow damage, hemolysis, immunosuppression and damage to the male reproductive tissues have been observed.

Causes skin irritation.

Harmful if absorbed through skin.

Readily absorbed through skin.

Causes eye irritation.

Material is irritating to mucous membranes and upper respiratory tract.

Harmful if inhaled.

Harmful if swallowed.

Chronic Effects

May cause reproductive disorders.

May cause congenital malformation in the fetus.

Target organ(s):

Blood

Central nervous system

Liver

Kidneys

RTECS #: KK805000

Ethanol, 2-ethoxy-

Irritation Data

<table>
<thead>
<tr>
<th>Effect</th>
<th>Time</th>
<th>Threshold</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye - HMN</td>
<td>6000 PPM</td>
<td>45,1459,1930</td>
<td>PHRPA6</td>
</tr>
<tr>
<td>Skin - RBT</td>
<td>500 MG OPEN MLD</td>
<td>UCDS** 5/20/1966</td>
<td></td>
</tr>
<tr>
<td>Eye - RBT</td>
<td>50 MG MOD</td>
<td>UCDS** 5/20/1966</td>
<td></td>
</tr>
<tr>
<td>Eye - RBT 500 MG/24H MLD</td>
<td>85JCAE -624,1986</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eye - GPG</td>
<td>10 UG MLD</td>
<td>JPPMAB 11,150,1959</td>
<td></td>
</tr>
</tbody>
</table>

Toxicity Data

<table>
<thead>
<tr>
<th>Effect</th>
<th>Animal</th>
<th>Route</th>
<th>Threshold</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORL - RAT LD50:2125 MG/KG</td>
<td>GTPZAB 32(3),48,1988</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IHL - RAT LC50:2000 PPM/7H</td>
<td>NPIRI* 1,54,1974</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SKN - RAT LD50:3900 MG/KG</td>
<td>TOXID9 4,180,1984</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IPR - RAT LD50:2800 MG/KG</td>
<td>ARZNAD 21,880,1971</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCU - RAT LD50:3400 MG/KG</td>
<td>ARZNAD 21,880,1971</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVN - RAT LD50:2400 MG/KG</td>
<td>NPIRI* 1,54,1974</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNR - RAT LD50:7750 MG/KG</td>
<td>GISAAS 47(5),84,1982</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORL - MUS LD50:2451 MG/KG</td>
<td>KODAK*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSDS-10,170A,1982</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IHL - MUS LC50:1820 PPM/7H</td>
<td>JIHTAB 25,157,1943</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IPR - MUS LD50:1707 MG/KG</td>
<td>FEPR7 6,342,1947</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVN - MUS LD50:3900 MG/KG</td>
<td>ARZNAD 21,880,1971</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNR - MUS LD50:5799 MG/KG</td>
<td>GISAAS 47(5),84,1982</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORL - RBT LD50:1275 MG/KG</td>
<td>GISAAS 53(10),78,1988</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SKN - RBT LD50:3300 MG/KG</td>
<td>NPIRI* 1,54,1974</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCU - RBT LD50:2 GM/KG</td>
<td>ARZNAD 21,880,1971</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVN - RBT LD50:900 MG/KG</td>
<td>ARZNAD 21,880,1971</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORL - GPG LD50:1400 MG/KG</td>
<td>JIHTAB 23,259,1941</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNR - GPG LD50:3070 MG/KG</td>
<td>GISAAS 47(5),84,1982</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Target Organ Data

Behavioral (general anesthetic)

Behavioral (altered sleep time)

Behavioral (convulsions or effect on seizure threshold)
BEHAVIORAL (ANALGESIA)
LUNGS, THORAX OR RESPIRATION (CHRONIC PULMONARY EDEMA OR CONGESTION)
LUNGS, THORAX OR RESPIRATION (DYSPNAE)
GASTROINTESTINAL (OTHER CHANGES)
KIDNEY, URETER, BLADDER (CHANGES IN TUBULES)
KIDNEY, URETER, BLADDER (HEMATURIA)
KIDNEY, URETER, BLADDER (OTHER CHANGES)
BLOOD (CHANGES IN SPLEEN)
PATERNAL EFFECTS (TESTES, EPIDIDYMIS, SPERM DUCT)
MATERNAL EFFECTS (UTERUS, CERVIX, VAGINA)
MATERNAL EFFECTS (PARTURITION)
MATERNAL EFFECTS (OTHER EFFECTS ON FEMALE)
EFFECTS ON FERTILITY (POST-IMPLANTATION MORTALITY)
EFFECTS ON FERTILITY (LITTER SIZE)
EFFECTS ON FERTILITY (OTHER MEASURES OF FERTILITY)
EFFECTS ON EMBRYO OR FETUS (FETOTOXICITY)
EFFECTS ON EMBRYO OR FETUS (FETAL DEATH)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (BODY WALL)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (MUSCULOSKELETAL SYSTEM)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (CARDIOVASCULAR SYSTEM)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (UROGENITAL SYSTEM)
EFFECTS ON NEWBORN (BEHAVIORAL)
ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES
(RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR
COMPLETE INFORMATION.

SECTION 12. - - - - - - - - - - ECOLOGICAL INFORMATION - - - - - - - - - -
DATA NOT YET AVAILABLE.

SECTION 13. - - - - - - - - - - DISPOSAL CONSIDERATIONS - - - - - - - - - -
CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF
THIS MATERIAL.
DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A
CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.
OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. - - - - - - - - - - TRANSPORT INFORMATION - - - - - - - - - -
CONTACT ALDRICH CHEMICAL COMPANY FOR TRANSPORTATION INFORMATION.

SECTION 15. - - - - - - - - - - REGULATORY INFORMATION - - - - - - - - - -
EUROPEAN INFORMATION
EC INDEX NO: 603-012-00-X
FLAMMABLE
TOXIC
R 60
MAY IMPAIR FERTILITY.
R 61
MAY CAUSE HARM TO THE UNBORN CHILD.
R 10
FLAMMABLE.
S 45
IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE
IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).
REVIEWS, STANDARDS, AND REGULATIONS
OEL=MAK
ACGIH TLV-TWA 5 PPM (SKIN) DTLVS* TLV/BEI, 1999
MSHA STANDARD-AIR:TWA 100 PPM (370 MG/M3) (SKIN)
DTLWS* 3, 18, 1973
OSHA PEL (GEN INDU): 8H TWA 200 PPM (740 MG/M3) (SKIN)
CFRGBR 29, 1910.1000, 1994
OSHA PEL (CONSTRUC): 8H TWA 200 PPM (740 MG/M3) (SKIN)
CFRGBR 29,1926.55,1994
OSHA PEL (SHIYARD): 8H TWA 200 PPM (740 MG/M3) (SKIN)
CFRGBR 29,1915.1000,1993
OSHA PEL (FED CONT): 8H TWA 200 PPM (740 MG/M3) (SKIN)
CFRGBR 41,50-204.50,1994
OEL-AUSTRALIA: TWA 5 PPM (19 MG/M3), SKIN, JAN1993
OEL-AUSTRIA: MAK 20 PPM (75 MG/M3), SKIN, JAN1999
OEL-BELGIUM: TWA 5 PPM (18 MG/M3), SKIN, JAN1993
OEL-DENMARK: TWA 5 PPM (18.5 MG/M3), SKIN, JAN1999
OEL-FINLAND: TWA 50 PPM (185 MG/M3), STEL 100 PPM (370 MG/M3), SKIN, JAN1999
OEL-FRANCE: VME 5 PPM (19 MG/M3), SKIN, JAN1999
OEL-GERMANY: MAK 20 PPM (75 MG/M3), SKIN, JAN1999
OEL-HUNGARY: TWA 70 MG/M3, STEL 140 MG/M3, SKIN, JAN1993
OEL-JAPAN: OEL 5 PPM (19 MG/M3), SKIN, JAN1999
OEL-NORWAY: TWA 5 PPM (18 MG/M3), JAN1999
OEL-POLAND: MAC(TWA) 20 MG/M3, MAC(STEL) 80 MG/M3, JAN1999
OEL-RUSSIA: TWA 5 PPM, STEL 5 MG/M3, JAN1993
OEL-SWEDEN: NGV 5 PPM (19 MG/M3), KTV 10 PPM (40 MG/M3), SKIN, JAN1999
OEL-SWITZERLAND: MAK-W 5 PPM (19 MG/M3), KZG-W 10 PPM (38 MG/M3), SKIN, JAN1999
OEL-TURKEY: TWA 200 PPM (740 MG/M3), JAN1993
OEL-UNITED KINGDOM: TWA 10 PPM (37 MG/M3), SKIN, SEP2000
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV
NIOSH REL TO ETHYLENEGLYCOL MONOETHYL ETHER-AIR: 10H TWA 0.5 PPM (SK)
NIOSH* DHHS #92-100,1992
NOHS 1974: HZD 31350; NIS 253; TNF 43849; NOS 154; TNE 406097
NOES 1983: HZD 31350; NIS 153; TNF 16505; NOS 106; TNE 264436; TFE 72493
EPA TSCA SECTION 8(B) CHEMICAL INVENTORY
EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES
EPA TSCA SECTION 8(E) RISK NOTIFICATION, 8EHQ-0892-9072
ON EPA IRIS DATABASE
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JANUARY 2001
NIOSH CURRENT INTELLIGENCE BULLETIN, #39
NIOSH ANALYTICAL METHOD, 1994: ALCOHOLS IV, 1403
NTP TOXICITY STUDIES, RPT# TOX-26, OCTOBER 2000
OSHA ANALYTICAL METHOD #53
U.S. INFORMATION
THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS.
THIS PRODUCT IS OR CONTAINS CHEMICAL(S) KNOWN TO THE STATE OF
CALIFORNIA TO CAUSE DEVELOPMENTAL TOXICITY.
THIS PRODUCT IS OR CONTAINS CHEMICAL(S) KNOWN TO THE STATE OF
CALIFORNIA TO CAUSE MALE REPRODUCTIVE TOXICITY.
SECTION 16. OTHER INFORMATION
THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TO
BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. SIGMA, ALDRICH,
FLUKA SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING
OR FROM CONTACT WITH THE ABOVE PRODUCT. SEE REVERSE SIDE OF INVOICE OR
PACKING SLIP FOR ADDITIONAL TERMS AND CONDITIONS OF SALE.
COPYRIGHT 2001 SIGMA-ALDRICH CO.
LICENSE GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.