Valid 05/2002 - 07/2002

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MATERIAL SAFETY DATA SHEET

SECTION 1. -- -- -- -- -- CHEMICAL IDENTIFICATION -- -- -- -- --
CATALOG #: 240699
NAME: EPICHLOROHYDRIN, 99+%  

SECTION 2. -- -- -- COMPOSITION/INFORMATION ON INGREDIENTS -- -- --
CAS #: 106-89-8
MP: C3H5ClO
EC NO.: 203-439-8

SYNONYMS
1-CHLOR-2,3-EPoxy-PROPAAN (DUTCH) * 1-CHLOR-2,3-EPoxy-PROPAAN (GERMAN)
* 1-CHLOR-2,3-EPoxyPROPANE * 3-CHLOR-1,2-EPoxyPROPANE * 1-CHLOR-2,
3-EPoxyPROPANE (OSHA) * EPI-CHLOROHYDRIN * (CHLOROMETHYL)ETHYLENE
OXIDE * CHLOROMETHYLOXIRANE * 2-(CHLOROMETHYL)OXIRANE * 3-CHLOR-1,2-
PROPANE OXIDE * CHLOROPROPYLENE OXIDE * GAMMA-CHLOROPROPYLENE OXIDE
* 3-CHLOR-1,2-PROPYLENE OXIDE * 1-CHLOR-2,3-EPoxyPROPANO (ITALIAN)
* ECH * EPICHLOROHYDRINE (DUTCH) * EPICHLOROHYDRIN * EPICHLOROHYDRINE
(FRENCH) * EPICHLOROHYDRIN (ACGIH:OSHA) * ALPHA-EPICHLOROHYDRIN * (DL)
-ALPHA-EPICHLOROHYDRIN * EPICHLOROHYDRyna (POLISH) * EPICHLOROHYDRIN
* EPICLORIDRINA (ITALIAN) * 1,2-EPoxy-3-CHLOROPROPANE * 2,3-
EPoxyPROPYL CHLORIDE * GLYCEROL EPICHLOROHYDRIN * OXIRANE,
(CHLOROMETHYL)- * OXIRANE, 2-(CHLOROMETHYL) * RCRA WASTE NUMBER U041 *
SKEHG *

SECTION 3. -- -- -- -- -- HAZARDS IDENTIFICATION -- -- -- -- --
LABEL PRECAUTIONARY STATEMENTS
FLAMMABLE
TOXIC
MAY CAUSE CANCER.
MAY CAUSE HERITABLE GENETIC DAMAGE.
TOXIC BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.
CAUSES BURNS.
MAY CAUSE SENSITIZATION BY SKIN CONTACT.
PROBABLE CARCINOGEN (US)
READILY ABSORBED THROUGH SKIN.
TARGET ORGAN(S):
KIDNEYS
LIVER
CALIF. PROP. 65 CARCINOGEN & REPRODUCTIVE HAZARD.
MUTAGEN.
IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE
IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).
KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING.
WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/EYE
PROTECTION.
DO NOT BREATHE VAPOR.

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
APPROPRIATE FOAM.
CARBON DIOXIDE.

SPECIAL FIREFIGHTING PROCEDURES
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO
PREVENT CONTACT WITH SKIN AND EYES.
USE WATER SPRAY TO COOL FIRE-EXPOSED CONTAINERS.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.
VAPOR MAY TRAVEL CONSIDERABLE DISTANCE TO SOURCE OF IGNITION AND
FLASH BACK.
CONTAINER EXPLOSION MAY OCCUR UNDER FIRE CONDITIONS.
FORMS EXPLOSIVE MIXTURES IN AIR.

SECTION 6. - - - - - - - ACCIDENTAL RELEASE MEASURES- - - - - - -

WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY
RUBBER GLOVES.
COVER WITH DRY-LIME, SAND, OR SODA ASH. PLACE IN COVERED CONTAINERS
USING NON-SPARKING TOOLS AND TRANSPORT OUTDOORS.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.
EVACUATE AREA.
SHUT OFF ALL SOURCES OF IGNITION.

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

SECTION 8. - - - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - - - -

SAFETY SHOWER AND EYE BATH.
USE NONSPARKING TOOLS.
USE ONLY IN A CHEMICAL FUME HOOD.
DO NOT BREATHE VAPOR.
AVOID CONTACT WITH EYES, SKIN AND CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
NIOSH/MSHA-APPROVED RESPIRATOR.
COMPATIBLE CHEMICAL-RESISTANT GLOVES.
CHEMICAL SAFETY GOGGLES.
KEEP CONTAINER CLOSED.
KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME.
STORE IN A COOL DRY PLACE.
WASH THOROUGHLY AFTER HANDLING.
REMOVE AND WASH CONTAMINATED CLOTHING PROMPTLY.
DESCARD CONTAMINATED SHOES.

SECTION 9. - - - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - - - -

APPEARANCE AND ODOR
COLORLESS LIQUID

PHYSICAL PROPERTIES
BOILING POINT: 115 C TO 117 C
MELTING POINT: -57 C
FLASHPOINT 93 F
EXPLOSION LIMITS IN AIR:
UPPER 21%
LOWER 3.8%
AUTOIGNITION TEMPERATURE: 779 F
VAPOR PRESSURE: 13.8MM 21.1 C
SPECIFIC GRAVITY: 1.183
VAPOR DENSITY: 3.2

SECTION 10. - - - - - - - STABILITY AND REACTIVITY - - - - - - -
STABILITY
STABLE.
INCOMPATIBILITIES
DO NOT MIX WITH...
ACIDS
BASES
AMMONIA
AMINES
SODIUM
ZINC
MAGNESIUM
ALUMINUM

http://infonew.sigma-aldrich.com/cgi-bin/gx.cgi/Applogic+MSDSInfo.ReturnMSDS 7/15/02
AND THEIR ALLOYS.
HALIDES
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS
HYDROGEN CHLORIDE GAS
PHOSGENE GAS
HAZARDOUS POLYMERIZATION
MAY UNDERGO AUTOPOLYMERIZATION.
SECTION 11. - - - - - - TOXICOLOGICAL INFORMATION - - - - - -
ACUTE EFFECTS
DIRECT CONTACT OF LIQUID EPICHLOROHYDRIN MAY CAUSE CLOUDING OF THE
CORNEA AND TISSUE DEATH. AVOID HIGH CONCENTRATIONS OF UNREACTED
EPICHLOROHYDRIN IN REACTION SYSTEMS. RUBBER OR NEOPRENE ARE SLOWLY
PENETRATED BY EPICHLOROHYDRIN. USE POLYETHYLENE.
MATERIAL IS EXTREMELY DESTRUCTIVE TO TISSUE OF THE MUCOUS MEMBRANES
AND UPPER RESPIRATORY TRACT, EYES AND SKIN.
INHALATION MAY RESULT IN SPASM, INFLAMMATION AND EDEMA OF THE
LARYNX AND BRONCHI. CHEMICAL PNEUMONITIS AND PULMONARY EDEMA.
SYMPTOMS OF EXPOSURE MAY INCLUDE BURNING SENSATION, COUGHING,
WHEEZING, LARYNGITIS, SHORTNESS OF BREATH, HEADACHE, NAUSEA AND
VOMITING.
CAUSES BURNS.
TOXIC IF ABSORBED THROUGH SKIN.
READILY ABSORBED THROUGH SKIN.
TOXIC IF INHALED.
MATERIAL IS EXTREMELY DESTRUCTIVE TO THE TISSUE OF THE MUCOUS MEMBRANES
AND UPPER RESPIRATORY TRACT.
TOXIC IF SWALLOWED.
MAY CAUSE ALLERGIC SKIN REACTION.
CHRONIC EFFECTS
THIS PRODUCT IS OR CONTAINS A COMPONENT THAT HAS BEEN REPORTED TO BE
PROBABLY CARCINOGENIC BASED ON ITS IARC, OSHA, ACGIH, NTP OR EPA
CLASSIFICATION.
TARGET ORGAN(S):
KIDNEYS
LIVER
LUNGS
MAY ALTER GENETIC MATERIAL.
RTECS #: TX4900000
PROPANE, 1-CHLORO-2,3-EPOXY-
IRRITATION DATA
SKN-RBT 10 MG/24H OPEN
EYE-RBT 100 MG SEV
EYE-RBT 100 MG/24H MOD
TOXICITY DATA
ORL-RAT LD50:90 MG/KG
JHTAB 30,63,1948
IHL-RAT LC50:250 PPM/8H
NPIRI* 1,41,1974
IPR-RAT LD50:113 MG/KG
JPMSAE 61,1712,1972
SCU-RAT LD50:150 MG/KG
AMPMAR 28,505,1967
IVN-RAT LD50:154 MG/KG
NPIRI* 1,41,1974
ORL-MUS LD50:195 MG/KG
GISAAA 33(1),46,1968
SKN-MUS LD50:250 MG/KG
85GMAT -,64,1982
IPR-MUS LD50:170 MG/KG
JPMSAE 61,1712,1972
ORL-RBT LD50:345 MG/KG
GISAAA 33(1),46,1968
SKN-RBT LD50:515 MG/KG
WOLMA# 18JAN1977
IPR-RBT LD50:160 MG/KG
JPMSAE 61,1712,1972
ORL-GFG LD50:280 MG/KG
GISAAA 33(1),46,1968
IPR-GFG LD50:118 MG/KG
JPMSAE 61,1712,1972
TARGET ORGAN DATA
SENSE ORGANS AND SPECIAL SENSES (OTHER OLFACTION EFFECTS)
SENSE ORGANS AND SPECIAL SENSES (OLFACTITION TUMORS)
SENSE ORGANS AND SPECIAL SENSES (OTHER EYE EFFECTS)
BEHAVIORAL (SONOMENCE)
BEHAVIORAL (TREMOR)
BEHAVIORAL (MUSCLE WEAKNESS)
BEHAVIORAL (ATAXIA)
LUNGS, THORAX OR RESPIRATION (ACUTE PULMONARY EDEMA)
LUNGS, THORAX OR RESPIRATION (CHRONIC PULMONARY EDEMA OR CONGESTION)
LUNGS, THORAX OR RESPIRATION (DYSPNÆA)
LUNGS, THORAX OR RESPIRATION (OTHER CHANGES)
LUNGS, THORAX OR RESPIRATION (TUMORS)
KIDNEY, URETER, BLADDER (CHANGES IN TUBULES)
KIDNEY, URETER, BLADDER (URINE VOLUME INCREASED)
BLOOD (LYMPHOMA INCLUDING HODGKIN'S DISEASE)
SKIN AND APPENDAGES (HAIR)
SKIN AND APPENDAGES (TUMORS)
PATERNAL EFFECTS (SPERMATOGENESIS)
PATERNAL EFFECTS (TESTES, EPIDIDYMIS, SPERM DUCT)
MATERNAL EFFECTS (OTHER EFFECTS ON FEMALE)
EFFECTS ON FERTILITY (MALE FERTILITY INDEX)
EFFECTS ON FERTILITY (PRE-IMPLANTATION MORTALITY)
EFFECTS ON FERTILITY (POST-IMPLANTATION MORTALITY)
EFFECTS ON EMBRYO OR FETUS (FETOTOXICITY)
TUMORIGENIC (CARCINOGENIC BY RTECS CRITERIA)
TUMORIGENIC (EQUIVOCAL TUMORIGENIC AGENT BY RTECS CRITERIA)
TUMORIGENIC (TUMORS AT SITE OF APPLICATION)
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 - - - - - - -
DATA NOT AVAILABLE

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

SECTION 15. - - - - - - - - REGULATORY INFORMATION - - - - - - -

EUROPEAN INFORMATION
EC INDEX NO: 603-026-00-6
FLAMMABLE
TOXIC
R 45
MAY CAUSE CANCER.
R 10
FLAMMABLE.
R 34
CAUSES BURNS.
R 43
MAY CAUSE SENSITIZATION BY SKIN CONTACT.
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-CONFIRMED ANIMAL CARCINOGEN DTLVS* TLV/BEI, 1999
ACGIH TLV-TWA 0.5 PPM (SKIN) DTLVS* TLV/BEI, 1999
IARC CANCER REVIEW: ANIMAL SUFFICIENT EVIDENCE IMEMDT 11, 131, 1976
IARC CANCER REVIEW: ANIMAL SUFFICIENT EVIDENCE IMEMDT 71, 603, 1999
IARC CANCER REVIEW: HUMAN INADEQUATE EVIDENCE IMSUDL 7, 202, 1987
IARC CANCER REVIEW: HUMAN INADEQUATE EVIDENCE IMEMDT 71, 603, 1999
IARC CANCER REVIEW: GROUP 2A IMEMDT 71, 603, 1999
MSHA STANDARD-AIR: TWA 5 PPM (19 MG/M3) (SKIN)
DTLVS* 3.98, 1971
OSHA PEL (GEN INDU): 8H TWA 5 PPM (19 MG/M3) (SKIN)
CFRGRBR 29, 1910.1000, 1994
OSHA PEL (CONSTRUC): 8H TWA 5 PPM (19 MG/M3) (SKIN)
CFRGRBR 29, 1926.55, 1994
OSHA PEL (SHIPIYARD): 8H TWA 5 PPM (19 MG/M3) (SKIN)
CFRGRBR 29, 1915.1000, 1993
OSHA PEL (FED CONT): 8H TWA 5 PPM (19 MG/M3) (SKIN)
CFRGRBR 41, 50-204.50, 1994
OEL-ARAB REPUBLIC OF EGYPT: TWA 2 PPM (10 MG/M3), SKIN, JAN1993
OEL-AUSTRALIA: TWA 2 PPM (10 MG/M3), SKIN, JAN1993
OEL-AUSTRIA: SKIN, CARCINOGEN, JAN1999
OEL-BELGIUM: TWA 2 PPM (7.6 MG/M3), SKIN, JAN1993
OEL-FINLAND: TWA 0.5 PPM (1.9 MG/M3), SKIN, CARCINOGEN, JAN1999
OEL-FRANCE: VLE 2 PPM (10 MG/M3), C2 CARCINOGEN, JAN1999
OEL-GERMANY: SKIN, CARCINOGEN, JAN1999
OEL-HUNGARY: STEL 1 MG/M3, SKIN, CARCINOGEN, JAN1999
OEL-THE NETHERLANDS: MAC-TGG 1 PPM (4 MG/M3), MAC-K 4 PPM, SKIN,
CARCINOGEN, JAN1999
OEL-NORWAY: TWA 0.5 PPM (1.9 MG/M3), JAN1999
OEL-THE PHILIPPINES: TWA 5 PPM (19 MG/M3), SKIN, JAN1993
OEL-Poland: MAC(TWA) 1 MG/M3, STEL 8 MG/M3, JAN1999
OEL-SWEDEN: NGV 0.5 PPM (1.9 MG/M3), KTV 1 PPM (4 MG/M3), SKIN, JAN1999
OEL-SWITZERLAND: MAK-W 2 PPM (8 MG/M3), SKIN, CARCINOGEN, JAN1999
OEL-TURKEY: TWA 5 PPM (19 MG/M3), SKIN, JAN1993
OEL-UNITED KINGDOM: TWA 0.5 PPM (1.9 MG/M3), STEL 1.5 PPM, CARCINOGEN,
SEP2000
OEL IN ARGENTINA, BULGARIA, COLOMBIA, JORDAN, KOREA CHECK ACGIH TLV;
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV
NIOSH REL TO EPICHLOROHYDRIN-AIR: CA LOWEST FEASIBLE CONCENTRATION
NIOSH* DIHS #92-100,1992
NOHS 1974: HED 29010; NIS 40; TNP 2004; NOS 58; TNE 41380
NOES 1983: HED 29010; NIS 75; TNP 4249; NOS 87; TNE 80170; TFE 14921
EPA GENETOX PROGRAM 1988, POSITIVE: CARCINOGENICITY-MOUSE/RAT
EPA GENETOX PROGRAM 1988, POSITIVE: IN VITRO CYTOGENETICS-HUMAN
LYMPOCYTE
EPA GENETOX PROGRAM 1988, POSITIVE: IN VIVO CYTOGENETICS-HUMAN
LYMPOCYTE
EPA GENETOX PROGRAM 1988, POSITIVE: N CRASSA-FORWARD MUTATION; N
CRASSA-REVERSION
EPA GENETOX PROGRAM 1988, POSITIVE: E COLI POLA WITHOUT S9; HISTIDINE
REVERSION-AMES TEST
EPA GENETOX PROGRAM 1988, POSITIVE: D MELANOGASTER SEX-LINKED LEATHAL; S
POMBE-FORWARD MUTATION
EPA GENETOX PROGRAM 1988, POSITIVE: S POMBE-REVERSION
EPA GENETOX PROGRAM 1988, NEGATIVE: SPERM MORPHOLOGY-HUMAN; SPERM
MORPHOLOGY-MOUSE
EPA GENETOX PROGRAM 1988, INCONCLUSIVE: MAMMALIAN MICRONUCLEUS
EPA TSCA SECTION 8(B) CHEMICAL INVENTORY
EPA TSCA 8(A) PRELIMINARY ASSESSMENT INFORMATION, FINAL RULE
ERENC 47,26992,82
EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES
ON EPA IRIS DATABASE
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JANUARY 2001
NIOSH CURRENT INTELLIGENCE BULLETIN 30, 1978
NIOSH ANALYTICAL METHOD, 1994: EPICHLOROHYDRIN, 1010
NTP 9TH REPORT ON CARCINOGENS, 2000: REASONABLY ANTICIPATED TO BE HUMAN
CARCINOGEN
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 CANCER.
THIS PRODUCT IS OR CONTAINS CHEMICAL(S) KNOWN TO THE STATE OF
CALIFORNIA TO CAUSE MALE REPRODUCTIVE TOXICITY.
SECTION 16. - - - - - - - - - - OTHER INFORMATION- - - - - - - - - - - - - - - - - -
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