

Product Number: **82320**

Product Name: **(±)-Propylene oxide**

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Product Info

Valid 05/2003 - 07/2003

[Description / Pricing](#)

Fluka Chemie AG

[Cert. of Analysis](#)

Postfach 260

[MSDS](#)

CH-9471 Buchs

Switzerland

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M A T 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 #: 82320
 NAME: (+/-)-PROPYLENE OXIDE

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - -
 CAS #: 75-56-9
 MF: C3H6O
 EC NO: 200-879-2

SYNONYMS
 AD 6 (SUSPENDING AGENT) * EPOXYPROPANE * 1,2-EPOXYPROPANE * 1,2-EPOXYPROPANE (ACGIH:OSHA) * 2,3-EPOXYPROPANE * ETHYLENE OXIDE, METHYL- * METHYL ETHYLENE OXIDE * METHYLOXACYCLOPROPANE * METHYL OXIRANE * NCI-C50099 * OXIRANE, METHYL- * OXYDE DE PROPYLENE (FRENCH) * PROPANE, EPOXY- * PROPENE OXIDE * PROPYLENE EPOXIDE * PROPYLENE OXIDE * 1,2-PROPYLENE OXIDE * PROPYLENE OXIDE (DOT:OSHA) *

SECTION 3. - - - - - HAZARDS IDENTIFICATION - - - - -
 LABEL PRECAUTIONARY STATEMENTS
 FLAMMABLE (USA)
 EXTREMELY FLAMMABLE (EU)
 TOXIC
 MAY CAUSE CANCER.
 CAUSES BURNS.
 HARMFUL BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.
 READILY ABSORBED THROUGH SKIN.
 TARGET ORGAN(S):
 CENTRAL NERVOUS SYSTEM
 CALIF. PROP. 65 CARCINOGEN.
 PROBABLE CARCINOGEN (US)
 CAUSES SEVERE EYE IRRITATION.
 CAUSES SEVERE SKIN IRRITATION.
 KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING.
 TAKE PRECAUTIONARY MEASURES AGAINST STATIC DISCHARGES.
 IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.
 WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE PROTECTION.
 IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).
 MAY DEVELOP PRESSURE.
 HEAT-SENSITIVE.
 CAUTION: COOL TO 0 DEGREES CENTIGRADE BEFORE OPENING.

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.
 WATER MAY BE EFFECTIVE FOR COOLING, BUT MAY NOT EFFECT EXTINGUISHMENT.

SPECIAL FIREFIGHTING PROCEDURES
 WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO
 PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS
 VAPOR MAY TRAVEL CONSIDERABLE DISTANCE TO SOURCE OF IGNITION AND
 FLASH BACK.
 CONTAINER EXPLOSION MAY OCCUR UNDER FIRE CONDITIONS.
 FLAMMABLE LIQUID.
 EMITS TOXIC FUMES UNDER FIRE CONDITIONS.
 UNDER FIRE CONDITIONS, MATERIAL MAY DECOMPOSE
 TO FORM FLAMMABLE AND/OR 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.
 WASH CONTAMINATED CLOTHING BEFORE REUSE.
 WASH THOROUGHLY AFTER HANDLING.
 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.

SECTION 9. - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - -
 PHYSICAL PROPERTIES
 BOILING POINT: 34 C
 MELTING POINT: -112 C
 FLASHPOINT -35F
 -37.22C
 EXPLOSION LIMITS IN AIR:
 UPPER 37 %
 LOWER 2.1 %
 VAPOR PRESSURE: 444.103 MMHG @ 20 C
 SPECIFIC GRAVITY: 0.83
 VAPOR DENSITY: 2 G/L
 SWISS POISON CLASS: 1*

SECTION 10. - - - - - STABILITY AND REACTIVITY - - - - -
 STABILITY
 STABLE.

INCOMPATIBILITIES
 PROTECT FROM HEAT.
 OXIDIZING AGENTS
 COPPER, COPPER ALLOYS
 STRONG ACIDS
 STRONG BASES
 PEROXIDES
 ALKALI
 AMINES

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS
 CARBON MONOXIDE, CARBON DIOXIDE
 HAZARDOUS POLYMERIZATION
 MAY OCCUR.
 PRODUCT MAY EXPLODE IF POLYMERIZATION IS INITIATED IN CLOSED CONTAINERS.

SECTION 11. - - - - - TOXICOLOGICAL INFORMATION - - - - -
 ACUTE EFFECTS
 CAUSES BURNS.
 HARMFUL IF ABSORBED THROUGH SKIN.
 READILY ABSORBED THROUGH SKIN.
 HARMFUL IF INHALED.
 MATERIAL IS EXTREMELY DESTRUCTIVE TO THE TISSUE OF THE MUCOUS MEMBRANES
 AND UPPER RESPIRATORY TRACT.
 HARMFUL IF SWALLOWED.
 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.

CAN CAUSE CNS DEPRESSION.

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):

CENTRAL NERVOUS SYSTEM

LABORATORY EXPERIMENTS HAVE SHOWN MUTAGENIC EFFECTS.

RTECS #: TZ2975000

PROPANE, 1,2-EPOXY-

IRRITATION DATA

SKN-RBT 415 MG OPEN MOD	UCDS** 12/13/1963
SKN-RBT 50 MG/6M SEV	AMIHAB 13,228,1956
EYE-RBT 20 MG SEV	AJOPAA 29,1363,1946
EYE-RBT 20 MG/24H MOD	85JCAE -,768,1986

TOXICITY DATA

ORL-RAT LD50:380 MG/KG	GTPZAB 14(11),55,1970
IHL-RAT LC50:4000 PPM/4H	AMIHAB 13,237,1956
IPR-RAT LD50:150 MG/KG	85GMAT -,103,1982
ORL-MUS LD50:440 MG/KG	GTPZAB 14(11),55,1970
IHL-MUS LC50:1740 PPM/4H	AMIHAB 13,237,1956
IPR-MUS LD50:175 MG/KG	85GMAT -,103,1982
SKN-RBT LD50:1500 UL/KG	AIHAAP 30,470,1969
ORL-GPG LD50:660 MG/KG	GISAAA 46(7),76,1981
ORL-MAM LD50:440 MG/KG	GISAAA 39(4),86,1974

TARGET ORGAN DATA

SENSE ORGANS AND SPECIAL SENSES (OTHER OLFACTION EFFECTS)
SENSE ORGANS AND SPECIAL SENSES (OLFACTION TUMORS)
BEHAVIORAL (SOMNOLENCE)
BEHAVIORAL (EXCITEMENT)
BEHAVIORAL (ATAXIA)
LUNGS, THORAX OR RESPIRATION (DYSPPNAE)
LUNGS, THORAX OR RESPIRATION (RESPIRATORY STIMULATION)
GASTROINTESTINAL (CHANGES IN STRUCTURE OR FUNCTION OF SALIVARY GLANDS)
LIVER (OTHER CHANGES)
KIDNEY, URETER, BLADDER (OTHER CHANGES)
ENDOCRINE (TUMORS)
BLOOD (LYMPHOMA INCLUDING HODGKIN'S DISEASE)
SKIN AND APPENDAGES (TUMORS)
PATERAL EFFECTS (SPERMATOGENESIS)
PATERAL EFFECTS (TESTES, EPIDIDYMIS, SPERM DUCT)
EFFECTS ON FERTILITY (PRE-IMPLANTATION MORTALITY)
EFFECTS ON FERTILITY (LITTER SIZE)
EFFECTS ON FERTILITY (OTHER MEASURES OF FERTILITY)
EFFECTS ON EMBRYO OR FETUS (FETOTOXICITY)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (CRANIOFACIAL)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (MUSCULOSKELETAL SYSTEM)
TUMORIGENIC (CARCINOGENIC BY RTECS CRITERIA)
TUMORIGENIC (NEOPLASTIC BY RTECS CRITERIA)
TUMORIGENIC (EQUIVOCAL TUMORIGENIC AGENT BY RTECS CRITERIA)
TUMORIGENIC (TUMORS AT SITE OF APPLICATION)
TUMORIGENIC (FACILITATES ACTION OF KNOWN CARCINOGENS)
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.
BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER BUT EXERT EXTRA CARE IN IGNITING AS THIS MATERIAL IS HIGHLY FLAMMABLE.
OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

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

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

EUROPEAN INFORMATION

EC INDEX NO: 603-055-00-4

EXTREMELY FLAMMABLE

TOXIC

R 45

MAY CAUSE CANCER.

R 46

MAY CAUSE HERITABLE GENETIC DAMAGE.

R 12

EXTREMELY FLAMMABLE.
R 20/21/22
HARMFUL BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.
R 36/37/38
IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.
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 20 PPM DTLVS* TLV/BEI,1999
IARC CANCER REVIEW:ANIMAL SUFFICIENT EVIDENCE IMEMDT 36,227,1985
IARC CANCER REVIEW:ANIMAL SUFFICIENT EVIDENCE IMEMDT 60,181,1994
IARC CANCER REVIEW:HUMAN INADEQUATE EVIDENCE IMEMDT 36,227,1985
IARC CANCER REVIEW:HUMAN INADEQUATE EVIDENCE IMEMDT 60,181,1994
IARC CANCER REVIEW:GROUP 2B IMEMDT 60,181,1994
EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION
FEREAC 54,7740,1989
MSHA STANDARD-AIR:TWA 100 PPM (240 MG/M3)
DTLVS* 3,219,1971
OSHA PEL (GEN INDU):8H TWA 100 PPM (240 MG/M3)
CFRGBR 29,1910.1000,1994
OSHA PEL (CONSTRUC):8H TWA 100 PPM (240 MG/M3)
CFRGBR 29,1926.55,1994
OSHA PEL (SHIPYARD):8H TWA 100 PPM (240 MG/M3)
CFRGBR 29,1915.1000,1993
OSHA PEL (FED CONT):8H TWA 100 PPM (240 MG/M3)
CFRGBR 41,50-204.50,1994
OEL-AUSTRALIA: TWA 20 PPM (50 MG/M3), CARCINOGEN, JAN1993
OEL-AUSTRIA: CARCINOGEN, JAN1999
OEL-BELGIUM: TWA 20 PPM (48 MG/M3), JAN1993
OEL-DENMARK: TWA 5 PPM (12 MG/M3), SKIN, JAN1999
OEL-FINLAND: TWA 5 PPM (12 MG/M3), CARCINOGEN, JAN1999
OEL-FRANCE: VME 20 PPM (50 MG/M3), C2 CARCINOGEN, JAN1999
OEL-GERMANY: CARCINOGEN, JAN1999
OEL-THE NETHERLANDS: MAC-TGG 100 PPM (240 MG/M3), CARCINOGEN, JAN1999
OEL-NORWAY: TWA 1 PPM (2 MG/M3), JAN1999
OEL-THE PHILIPPINES: TWA 100 PPM (240 MG/M3), JAN1993
OEL-RUSSIA: STEL 1 MG/M3, SKIN, JAN1993
OEL-SWEDEN: NGV 5 PPM (12 MG/M3), KTV 10 PPM (25 MG/M3), JAN1999
OEL-SWITZERLAND: MAK-W 2.5 PPM (6 MG/M3), CARCINOGEN, JAN1999
OEL-TURKEY: TWA 100 PPM (240 MG/M3), JAN1993
OEL-UNITED KINGDOM: TWA 5 PPM (12 MG/M3), CARCINOGEN, SEP2000
OEL IN ARGENTINA, BULGARIA, COLOMBIA, JORDAN, KOREA CHECK ACGIH TLV;
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV
NIOSH REL TO PROPYLENE OXIDE-AIR:CA LOWEST FEASIBLE CONCENTRTRION
NIOSH* DHHS #92-100,1992
NOHS 1974: HZD 63550; NIS 78; TNF 9032; NOS 60; TNE 75135
NOES 1983: HZD 63550; NIS 57; TNF 5786; NOS 67; TNE 421140; TFE 317309
EPA GENETOX PROGRAM 1988, POSITIVE: CARCINOGENICITY-MOUSE/RAT; CELL
TRANSFORM.-SA7/SHE
EPA GENETOX PROGRAM 1988, POSITIVE: N CRASSA-REVERSION; D MELANOGASTER
SEX-LINKED LETHAL
EPA GENETOX PROGRAM 1988, POSITIVE: S POMBE-REVERSION
EPA GENETOX PROGRAM 1988, NEGATIVE: RODENT DOMINANT LETHAL
EPA GENETOX PROGRAM 1988, POSITIVE: CHO GENE MUTATION
EPA TSCA SECTION 8(B) CHEMICAL INVENTORY
EPA TSCA 8(A) PRELIMINARY ASSESSMENT INFORMATION, FINAL RULE
FEREAC 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 51, JULY 1989
NIOSH ANALYTICAL METHOD, 1994: PROPYLENE OXIDE, 1612
NTP CARCINOGENESIS STUDIES (INHALATION);CLEAR EVIDENCE:MOUSE
NTPTR* NTP-TR-267,1985
NTP CARCINOGENESIS STUDIES (INHALATION);SOME EVIDENCE:RAT
NTPTR* NTP-TR-267,1985
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.

SECTION 16. - - - - - OTHER INFORMATION - - - - -

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