

RECEIVED JUL 25 1997

PRODUCT #: 133124 NAME: TRICHLOROETHYLENE, 98%
MATERIAL SAFETY DATA SHEET, Valid 8/96 - 10/96
Printed Friday, August 16, 1996 9:31AM

Sigma Chemical Co.
P.O. Box 14508
St. Louis, MO 63178
Phone: 314-771-5765

Aldrich Chemical Co., Inc.
1001 West St. Paul
Milwaukee, WI 53233
Phone: 414-273-3850

Fluka Chemical Corp.
980 South Second St.
Ronkonkoma, NY 11779
Phone: 516-467-0980
Emergency Phone: 516-467-3535

SECTION 1. - - - - - CHEMICAL IDENTIFICATION- - - - -

CATALOG #: 133124
NAME: TRICHLOROETHYLENE, 98%

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - -

CAS #: 79-01-6
MF: C2HCL3
EC NO: 201-167-4

ADDITIONAL INFORMATION

CONTAINS 1,2-EPOXYBUTANE, CHEMICAL ABSTRACTS REGISTRY NUMBER 106-88-7.

SYNONYMS

ACETYLENE TRICHLORIDE * ALGYLEN * ANAMENTH * BENZINOL * BLACOSOLV *
BLANCOSOLV * CECOLENE * CHLORILEN * 1-CHLORO-2,2-DICHLOROETHYLENE *
CHLORYLEN * CIRCOSOLV * CRAWHASPOL * DENSINFLUAT * 1,1-DICHLORO-2-
CHLOROETHYLENE * DOW-TRI * DUKERON * ETHINYL TRICHLORIDE * ETHYLENE
TRICHLORIDE * FLECK-FLIP * FLOCK FLIP * FLUATE * GERMALGENE * LANADIN
* LETHURIN * NARCOGEN * NARKOSOID * NCI-C04546 * NIALK * PERM-A-CHLOR
* PERM-A-CLOR * PETZINOL * PHILEX * RCRA WASTE NUMBER U228 *
THRETHYLEN * THRETHYLENE * TRETHYLENE * TRI * TRIAD * TRIAL * TRIASOL
* TRICHLLOORETHEEN (DUTCH) * TRICHLLOORETHYLEEN, TRI (DUTCH) *
TRICHLORAETHEN (GERMAN) * TRICHLORAETHYLEN, TRI (GERMAN) * TRICHLORAN
* TRICHLOREN * TRICHLORETHENE (FRENCH) * TRICHLORETHYLENE *
TRICHLORETHYLENE, TRI (FRENCH) * TRICHLOROETHENE * TRICHLOROETHYLENE
(IUPAC) * 1,1,2-TRICHLOROETHYLENE * 1,2,2-TRICHLOROETHYLENE *
TRICHLOROETHYLENE (ACGIH:DOT:OSHA) * TRI-CLENE * TRICLORETENE
(ITALIAN) * TRICLOROETILENE (ITALIAN) * TRIELENE * TRIELIN * TRIELINA
(ITALIAN) * TRIELINE * TRILEN * TRILENE * TRILINE * TRIMAR * TRIOL *
TRI-PLUS * TRI-PLUS M * UN1710 (DOT) * VESTROL * VITRAN * WESTROSOL *

SECTION 3. - - - - - HAZARDS IDENTIFICATION - - - - -

LABEL PRECAUTIONARY STATEMENTS

TOXIC

MAY CAUSE CANCER.

MAY CAUSE HERITABLE GENETIC DAMAGE.

TOXIC BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.

CAUSES SEVERE IRRITATION.

TARGET ORGAN(S):

CENTRAL NERVOUS SYSTEM

LIVER, KIDNEYS

HEART

LUNGS

IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE
IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).

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.

PROTECT FROM LIGHT.

SECTION 4. - - - - - FIRST-AID MEASURES- - - - -

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES.

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

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN IMMEDIATELY.

DISCARD CONTAMINATED CLOTHING AND SHOES.

SECTION 5. - - - - - FIRE FIGHTING MEASURES - - - - -

EXTINGUISHING MEDIA

NONCOMBUSTIBLE.

USE EXTINGUISHING MEDIA APPROPRIATE TO SURROUNDING FIRE CONDITIONS.

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.

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

EVACUATE AREA.

WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES.

ABSORB ON SAND OR VERMICULITE AND PLACE IN CLOSED CONTAINERS FOR DISPOSAL.

VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

SECTION 7. - - - - - HANDLING AND STORAGE- - - - -

REFER TO SECTION 8.

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

WEAR APPROPRIATE NIOSH/MSHA-APPROVED RESPIRATOR, CHEMICAL-RESISTANT GLOVES, SAFETY GOGGLES, OTHER PROTECTIVE CLOTHING.

SAFETY SHOWER AND EYE BATH.

USE ONLY IN A CHEMICAL FUME HOOD.

DO NOT BREATHE VAPOR.

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

AVOID PROLONGED OR REPEATED EXPOSURE.

WASH THOROUGHLY AFTER HANDLING.

SEVERE IRRITANT.

TOXIC.

CARCINOGEN.

MUTAGEN.

KEEP TIGHTLY CLOSED.

STORE IN A COOL DRY PLACE.

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

APPEARANCE AND ODOR

COLORLESS LIQUID

PHYSICAL PROPERTIES

BOILING POINT: 86.7 C TO 87 C

MELTING POINT: -84.8 C

FLASHPOINT NONE

EXPLOSION LIMITS IN AIR:

UPPER

90% 57 C

LOWER

12.5% 57 C

AUTOIGNITION TEMPERATURE: 770 F

409C

VAPOR PRESSURE: 61MM 20 C

SPECIFIC GRAVITY: 1.463

VAPOR DENSITY: 4.5

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

INCOMPATIBILITIES

OXIDIZING AGENTS

REDUCING AGENTS

STRONG BASES

ALUMINUM

MAGNESIUM

SENSITIVE TO LIGHT

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS

TOXIC FUMES OF:

CARBON MONOXIDE, CARBON DIOXIDE

HYDROGEN CHLORIDE GAS

PHOSGENE GAS

SECTION 11. - - - - -TOXICOLOGICAL INFORMATION - - - - -

ACUTE EFFECTS

HARMFUL IF SWALLOWED, INHALED, OR ABSORBED THROUGH SKIN.

CAUSES SEVERE IRRITATION.

HIGH CONCENTRATIONS ARE EXTREMELY DESTRUCTIVE TO TISSUES OF THE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT, EYES AND SKIN.

SYMPTOMS OF EXPOSURE MAY INCLUDE BURNING SENSATION, COUGHING, WHEEZING, LARYNGITIS, SHORTNESS OF BREATH, HEADACHE, NAUSEA AND VOMITING.

EXPOSURE TO AND/OR CONSUMPTION OF ALCOHOL MAY INCREASE TOXIC EFFECTS.

EXPOSURE CAN CAUSE:

GASTROINTESTINAL DISTURBANCES

DAMAGE TO THE KIDNEYS

NAUSEA, DIZZINESS AND HEADACHE

NARCOTIC EFFECT

PROLONGED CONTACT CAN CAUSE:

DERMATITIS

CHRONIC EFFECTS

CARCINOGEN.

MAY ALTER GENETIC MATERIAL.

TARGET ORGAN(S):

CENTRAL NERVOUS SYSTEM

LIVER, KIDNEYS

HEART

LUNGS

RTECS #: KX4550000

ETHYLENE, TRICHLORO-

IRRITATION DATA

SKN-RBT 2 MG/24H SEV

85JCAE -,106,86

EYE-RBT 20 MG/24H MOD

85JCAE -,106,86

TOXICITY DATA

ORL-HMN LDLO:7 GM/KG

ARTODN 35,295,76

IHL-MAN LCLO:2900 PPM

NZMJAX 50,119,51

ORL-RAT LD50:5650 MG/KG

ATDAEI 1,713,92

IPR-RAT LD50:1282 MG/KG

ENVRAL 40,411,86

ORL-MUS LD50:2402 MG/KG

NTIS** AD-A080-636

IHL-MUS LC50:8450 PPM/4H

APTOA6 9,303,53

SCU-MUS LD50:16 GM/KG

JPETAB 123,224,58

IVN-MUS LD50:33900 UG/KG

CBCCT* 6,141,54

IPR-DOG LD50:1900 MG/KG

TXAPA9 10,119,67

SKN-RBT LD50:>20 GM/KG

NTIS** AD-A062-138

TARGET ORGAN DATA

SENSE ORGANS AND SPECIAL SENSES (OTHER EYE EFFECTS)
BEHAVIORAL (SOMNOLENCE)
BEHAVIORAL (HALLUCINATIONS, DISTORTED PERCEPTIONS)
VASCULAR (TUMORS)
LUNGS, THORAX OR RESPIRATION (TUMORS)
GASTROINTESTINAL (OTHER CHANGES)
LIVER (JAUNDICE, OTHER OR UNCLASSIFIED)
LIVER (LIVER FUNCTION TESTS IMPAIRED)
LIVER (TUMORS)
BLOOD (LYMPHOMA INCLUDING HODGKIN'S DISEASE)
SKIN AND APPENDAGES (TUMORS)
PATERAL EFFECTS (SPERMATOGENESIS)
EFFECTS ON FERTILITY (POST-IMPLANTATION MORTALITY)
EFFECTS ON EMBRYO OR FETUS (FETOTOXICITY)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (CENTRAL NERVOUS SYSTEM)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (MUSCULOSKELETAL SYSTEM)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (UROGENITAL SYSTEM)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (OTHER DEVELOPMENTAL ABNORMALITIES)
TUMORIGENIC (CARCINOGENIC BY RTECS CRITERIA)
TUMORIGENIC (EQUIVOCAL TUMORIGENIC AGENT BY RTECS CRITERIA)
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 - - - - -
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: 602-027-00-9
TOXIC
R 40
POSSIBLE RISK OF IRREVERSIBLE EFFECTS.
S 23
DO NOT BREATHE VAPOR.
S 36/37
WEAR SUITABLE PROTECTIVE CLOTHING AND GLOVES.

REVIEWS, STANDARDS, AND REGULATIONS

OEL=MAK
ACGIH TLV-TWA 50 PPM; STEL 200 PPM 85INA8 6,1611,91
IARC CANCER REVIEW:ANIMAL LIMITED EVIDENCE IMEMDT 20,545,79
IARC CANCER REVIEW:ANIMAL SUFFICIENT EVIDENCE IMEMDT 63,75,95
IARC CANCER REVIEW:HUMAN LIMITED EVIDENCE IMEMDT 63,75,95
IARC CANCER REVIEW:HUMAN INADEQUATE EVIDENCE IMEMDT 20,545,79
IARC CANCER REVIEW:GROUP 3 IMSUDL 7,364,87
IARC CANCER REVIEW:GROUP 2A IMEMDT 63,75,95
MSHA STANDARD-AIR:TWA 100 PPM (535 MG/M3)
DTLVS* 3,263,71
OSHA PEL (GEN INDU):8H TWA 100 PPM;CL 200;PK 300/5M/2H
CFRGBR 29,1910.1000,94

OSHA PEL (CONSTRUC):8H TWA 100 PPM (535 MG/M3)
CFRGBR 29,1926.55,94
OSHA PEL (SHIPYARD):8H TWA 100 PPM (535 MG/M3)
CFRGBR 29,1915.1000,93
OSHA PEL (FED CONT):8H TWA 100 PPM (535 MG/M3)
CFRGBR 41,50-204.50,94
OEL-AUSTRALIA:TWA 50 PPM (270 MG/M3);STEL 200 PPM (1080 MG/M3) JAN93
OEL-BELGIUM:TWA 50 PPM (269 MG/M3);STEL 200 PPM (1070 MG/M3) JAN93
OEL-CZECHOSLOVAKIA:TWA 250 MG/M3;STEL 1250 MG/M3 JAN93
OEL-DENMARK:TWA 30 PPM (160 MG/M3) JAN93
OEL-FINLAND:TWA 30 PPM (160 MG/M3);STEL 45 PPM (240 MG/M3);SKIN JAN93
OEL-FRANCE:TWA 75 PPM (405 MG/M3);STEL 200 PPM (1080 MG/M3) JAN93
OEL-GERMANY:TWA 50 PPM (270 MG/M3);CARCINOGEN JAN93
OEL-HUNGARY:TWA 10 MG/M3;STEL 40 MG/M3 JAN93
OEL-JAPAN:TWA 50 PPM (270 MG/M3) JAN93
OEL-THE NETHERLANDS:TWA 35 PPM (190 MG/M3);STEL 100 PPM JAN93
OEL-THE PHILIPPINES:TWA 100 PPM (535 MG/M3) JAN93
OEL-POLAND:TWA 50 MG/M3 JAN93
OEL-RUSSIA:TWA 50 PPM;STEL 10 MG/M3 JAN93
OEL-SWEDEN:TWA 10 PPM (50 MG/M3);STEL 25 PPM (140 MG/M3) JAN93
OEL-THAILAND:TWA 100 PPM;STEL 200 PPM JAN93
OEL-TURKEY:TWA 100 PPM (535 MG/M3) JAN93
OEL-UNITED KINGDOM:TWA 100 PPM (535 MG/M3);STEL 150 PPM;SKIN JAN93
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA CHECK ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV
NIOSH REL TO TRICHLOROETHYLENE-AIR:10H CA TWA 25 PPM;CL 2 PPM/1H
NIOSH* DHHS #92-100,92
NIOSH REL TO WASTE ANESTHETIC GASES AND VAPORS-AIR:CL 2 PPM/1H
MMWR** 37(S-7),28,88
NOHS 1974: HZD 73790; NIS 251; TNF 37699; NOS 141; TNE 446588
NOES 1983: HZD 73790; NIS 192; TNF 23225; NOS 143; TNE 401373; TFE
175316
ATSDR TOXICOLOGY PROFILE (NTIS** PB/90/127523/AS)
EPA GENETOX PROGRAM 1988, POSITIVE: CELL TRANSFORM.-RLV F344 RAT
EMBRYO; HOST-MEDIATED ASSAY
EPA GENETOX PROGRAM 1988, POSITIVE: MOUSE SPOT TEST; SPERM
MORPHOLOGY-MOUSE
EPA GENETOX PROGRAM 1988, POSITIVE: S CEREVISIAE GENE CONVERSION; S
CEREVISIAE-HOMOZYGOSIS
EPA GENETOX PROGRAM 1988, POSITIVE: S CEREVISIAE-REVERSION
EPA GENETOX PROGRAM 1988, POSITIVE/LIMITED: CARCINOGENICITY-MOUSE/RAT
EPA GENETOX PROGRAM 1988, NEGATIVE: D MELANOGASTER SEX-LINKED LETHAL
EPA GENETOX PROGRAM 1988, INCONCLUSIVE: HISTIDINE REVERSION-AMES TEST
EPA TSCA SECTION 8(B) CHEMICAL INVENTORY
EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES
ON EPA IRIS DATABASE
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, APRIL 1996
NIOSH CURRENT INTELLIGENCE BULLETIN 2, 1975
NIOSH ANALYTICAL METHOD, 1994: TRICHLOROETHYLENE, 1022; BY PORTABLE GC,
3701
NCI CARCINOGENESIS BIOASSAY (GAVAGE);CLEAR EVIDENCE:MOUSE
NCITR* NCI-TR-2,76
NTP CARCINOGENESIS STUDIES (GAVAGE);CLEAR EVIDENCE:MOUSE
NTPTR* NTP-TR-243,83
NCI CARCINOGENESIS BIOASSAY (GAVAGE);NO EVIDENCE:RAT

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NCITR* NCI-TR-2,76
NTP CARCINOGENESIS STUDIES (GAVAGE);INADEQUATE STUDIES:RAT
NTPTR* NTP-TR-273,88
NCI CARCINOGENESIS STUDIES (GAVAGE);INADEQUATE STUDIES:RAT
NTPTR* NTP-TR-243,83

U. S. INFORMATION

1.0% 1,2-BUTYLENE OXIDE 106-88-7

THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS.

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

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