



SIGMA-ALDRICH

ALDRICH CHEMICAL COMPANY, INC.
P.O. BOX 355
MILWAUKEE, WISCONSIN 53201, USA

JUN 07 1999

ATTN: SAFETY DIRECTOR
MARY PINKERTON/CREDIT CARD ORD
UNIVERSITY OF WISCONSIN WHITEWATER
P O BOX 296
WHITEWATER WI 53190

EMERGENCY PHONE 1-414-273-3850

DATE 06/01/99
CUST#: 523216
PO#: CC/2444G REQ

M A T E R I A L S A F E T Y D A T A S H E E T PAGE 1

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

CATALOG #: 27764-9
NAME: ETHYL ALCOHOL, REAGENT, ANHYDROUS,
DENATURED

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

CAS #: 64-17-5
MF: C2H6O
EC NO: 200-578-6

ADDITIONAL INFORMATION

CONTAINS METHYL ALCOHOL, CHEMICAL ABSTRACTS REGISTRY NUMBER 67-56-1.
CONTAINS 2-PROPANOL (ISOPROPYL ALCOHOL), CHEMICAL ABSTRACTS REGISTRY
NUMBER 67-63-0.

RTECS DATA AND SYNONYMS SUPPLIED ARE FOR THE MOST ABUNDANT HAZARDOUS
COMPONENT OF THIS PRODUCT.

SYNONYMS

ABSOLUTE ETHANOL * AETHANOL (GERMAN) * AETHYLALKOHOL (GERMAN) *
ALCOHOL * ALCOHOL, ANHYDROUS * ALCOHOL DEHYDRATED * ALCOOL ETHYLIQUE
(FRENCH) * ALCOOL ETILICO (ITALIAN) * ALGRAIN * ALKOHOL (GERMAN) *
ALKOHOLU ETYLOWEGO (POLISH) * ANHYDROL * COLOGNE SPIRIT * ETANOLO
(ITALIAN) * ETHANOL (ACGIH:OSHA) * ETHYL ALCOHOL (DOT:OSHA) * ETHYL
ALCOHOL ANHYDROUS * ETHYL HYDRATE * ETHYL HYDROXIDE * ETYLOWY ALKOHOL
(POLISH) * FERMENTATION ALCOHOL * GRAIN ALCOHOL * JAYSOL * JAYSOL S *
METHYLCARBINOL * MOLASSES ALCOHOL * NCI-C03134 * POTATO ALCOHOL * SD
ALCOHOL 23-HYDROGEN * SPIRITS OF WINE * SPIRT * TECSOL *

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

LABEL PRECAUTIONARY STATEMENTS

FLAMMABLE (USA)
HIGHLY FLAMMABLE (EU)
HARMFUL
HARMFUL BY INHALATION AND IF SWALLOWED.
IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.
TARGET ORGAN(S):
NERVES
EYES
KEEP CONTAINER TIGHTLY CLOSED.
KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING.
AVOID CONTACT WITH SKIN.
IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE
IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).
HYGROSCOPIC
KEEP TIGHTLY CLOSED.
HANDLE AND STORE UNDER NITROGEN.

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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 P A G E 2

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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. ASSURE ADEQUATE FLUSHING OF THE EYES BY SEPARATING THE EYELIDS WITH FINGERS. 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. WASH CONTAMINATED CLOTHING BEFORE REUSE.

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.
USE WATER SPRAY TO COOL FIRE-EXPOSED CONTAINERS.
FLAMMABLE LIQUID.

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.

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

SHUT OFF ALL SOURCES OF IGNITION.
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.
USE NONSPARKING TOOLS.
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.
USE ONLY IN A CHEMICAL FUME HOOD.

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SAFETY SHOWER AND EYE BATH.
DO NOT BREATHE VAPOR.
DO NOT GET IN EYES, ON SKIN, ON CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
WASH THOROUGHLY AFTER HANDLING.
HARMFUL LIQUID.
IRRITANT.
KEEP TIGHTLY 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: 78 C
MELTING POINT: -130 C
FLASHPOINT 48 F
8C
EXPLOSION LIMITS IN AIR:
UPPER °24.5%
LOWER 3.3%
AUTOIGNITION TEMPERATURE: 683 F 361C
VAPOR PRESSURE: 44.6MM 20 C
SPECIFIC GRAVITY: 0.785
VAPOR DENSITY: 1.59

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

STABILITY
STABLE.

INCOMPATIBILITIES

OXIDIZING AGENTS
PEROXIDES
ACIDS
ACID CHLORIDES
ACID ANHYDRIDES
ALKALI METALS
AMMONIA
PROTECT FROM MOISTURE.

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS

TOXIC FUMES OF:
CARBON MONOXIDE, CARBON DIOXIDE

HAZARDOUS POLYMERIZATION
WILL NOT OCCUR.

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

ACUTE EFFECTS

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HARMFUL IF INHALED OR SWALLOWED.
MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.
VAPOR OR MIST IS IRRITATING TO THE EYES, MUCOUS MEMBRANES AND UPPER
RESPIRATORY TRACT.
CAUSES SKIN IRRITATION.
CAN CAUSE CNS DEPRESSION.
EXPOSURE CAN CAUSE:
GASTROINTESTINAL DISTURBANCES
NAUSEA, DIZZINESS AND HEADACHE
NARCOTIC EFFECT
PROLONGED OR REPEATED EXPOSURE TO SKIN CAUSES DEFATTING AND
DERMATITIS.
MAY CAUSE CONVULSIONS.

CHRONIC EFFECTS

TARGET ORGAN(S):

NERVES
EYES
LIVER
KIDNEYS
HEART
CARDIOVASCULAR SYSTEM
G.I. SYSTEM

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND
TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

RTECS DATA AND SYNONYMS SUPPLIED ARE FOR THE MOST ABUNDANT HAZARDOUS
COMPONENT OF THIS PRODUCT.

RTECS #: K06300000
ETHYL ALCOHOL

IRRITATION DATA

SKN-RBT 400 MG OPEN MLD	UCDS** 7/22/1970
SKN-RBT 20 MG/24H MOD	85JCAE - 189,1986
EYE-RBT 500 MG SEV	AJOPAA 29,1363,1946
EYE-RBT 500 MG/24H MLD	85JCAE - 189,1986
EYE-RBT 100 MG/4S RINSE MOD	FCTOD7 20,573,1982

TOXICITY DATA

ORL-CHD LDLO:2 GM/KG	ATXKA8 17,183,1958
ORL-HMN LDLO:1400 MG/KG	NPIRI* 1,44,1974
SCU-INF LDLO:19440 MG/KG	AJCPAI 5,466,1935
ORL-RAT LD50:7060 MG/KG	TXAPA9 16,718,1970
IHL-RAT LC50:20000 PPM/10H	NPIRI* 1,44,1974
IPR-RAT LD50:3600 UG/KG	PHMGBN 2,27,1969
IVN-RAT LD50:1440 MG/KG	TXAPA9 18,60,1971
IAT-RAT LD50:11 MG/KG	TXAPA9 18,60,1971
ORL-MUS LD50:3450 MG/KG	GISAAA 32(3),31,1967
IHL-MUS LC50:39 GM/M3/4H	GTPZAB 26(8),53,1982
IPR-MUS LD50:528 MG/KG	STRAAA 127,245,1965

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Table with 2 columns: LD50 values for various species (SCU-MUS, IVN-MUS, etc.) and corresponding dates (FAONAU 48A, 99, 1970, etc.)

TARGET ORGAN DATA
BEHAVIORAL (SLEEP)
BEHAVIORAL (CHANGE IN MOTOR ACTIVITY)
...
ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS) DATA IS PRESENTED HERE.

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

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SECTION 13. - - - - - DISPOSAL CONSIDERATIONS - - - - -

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 ALDRICH CHEMICAL COMPANY FOR TRANSPORTATION INFORMATION.

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

EUROPEAN INFORMATION

EC INDEX NO: 603-002-00-5
HIGHLY FLAMMABLE
HARMFUL
R 11
HIGHLY FLAMMABLE.
R 20/22
HARMFUL BY INHALATION AND IF SWALLOWED.
S 7
KEEP CONTAINER TIGHTLY CLOSED.
S 16
KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING.
S 24
AVOID CONTACT WITH SKIN.
S 45
IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).

TLV AND SOURCE

FOR METHYL ALCOHOL - SKIN:
ACGIH TLV-TWA: 200 PPM (260 MG/M3); STEL: 250 PPM (310 MG/M3).
OSHA PEL: 8 H TWA 200 PPM (260 MG/M3); STEL: 250 PPM (310 MG/M3).
FOR 2-PROPANOL (ISOPROPYL ALCOHOL):
ACGIH TLV-TWA: 400 PPM (983 MG/M3); STEL: 500 PPM (1230 MG/M3).
OSHA PEL: 8H TWA: 400 PPM (983 MG/M3); STEL: 500 PPM (1225 MG/M3).

RTECS DATA AND SYNONYMS SUPPLIED ARE FOR THE MOST ABUNDANT HAZARDOUS COMPONENT OF THIS PRODUCT.

REVIEWS, STANDARDS, AND REGULATIONS

OEL=MAK
ACGIH TLV-NOT CLASSIFIABLE AS A HUMAN CARCINOGEN DTLVS* TLV/BEI,1997
ACGIH TLV-TWA 1880 MG/M3 (1000 PPM) DTLVS* TLV/BEI,1997
IARC CANCER REVIEW:ANIMAL INADEQUATE EVIDENCE IMEMDT 44,35,1988
EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION
FEREAC 54,7740,1989

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MSHA STANDARD-AIR:TWA 1000 PPM (1900 MG/M3)
 DTLVS* 3,103,1971
 OSHA PEL (GEN INDU):8H TWA 1000 PPM (1900 MG/M3)
 CFRGBR 29,1910.1000,1994
 OSHA PEL (CONSTRUC):8H TWA 1000 PPM (1900 MG/M3)
 CFRGBR 29,1926.55,1994
 OSHA PEL (SHIPYARD):8H TWA 1000 PPM (1900 MG/M3)
 CFRGBR 29,1915.1000,1993
 OSHA PEL (FED CONT):8H TWA 1000 PPM (1900 MG/M3)
 CFRGBR 41,50-204.50,1994
 OEL-AUSTRALIA:TWA 1000 PPM (1900 MG/M3) JAN 1993
 OEL-BELGIUM:TWA 1000 PPM (1880 MG/M3) JAN 1993
 OEL-DENMARK:TWA 1000 PPM (1900 MG/M3) JAN 1993
 OEL-FINLAND:TWA 1000 PPM (1900 MG/M3);STEL 1250 PPM (2400 MG/M3) JAN 1993
 OEL-FRANCE:TWA 1000 PPM (1900 MG/M3);STEL 5000 PPM JAN 1993
 OEL-GERMANY:TWA 1000 PPM (1900 MG/M3) JAN 1993
 OEL-HUNGARY:TWA 1000 MG/M3;STEL 3000 MG/M3 JAN 1993
 OEL-THE NETHERLANDS:TWA 1000 PPM (1900 MG/M3) JAN 1993
 OEL-THE PHILIPPINES:TWA 1000 PPM (1900 MG/M3) JAN 1993
 OEL-POLAND:TWA 1000 MG/M3 JAN 1993
 OEL-RUSSIA:STEL 1000 MG/M3 JAN 1993
 OEL-SWEDEN:TWA 1000 PPM (1900 MG/M3) JAN 1993
 OEL-SWITZERLAND:TWA 1000 PPM (1900 MG/M3) JAN 1993
 OEL-THAILAND:TWA 1000 PPM (1900 MG/M3) JAN 1993
 OEL-TURKEY:TWA 1000 PPM (1900 MG/M3) JAN 1993
 OEL-UNITED KINGDOM:TWA 1000 PPM (1900 MG/M3) JAN 1993
 OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA CHECK ACGIH TLV
 OEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV
 NIOSH REL TO ETHYL ALCOHOL-AIR:10H TWA 1000 PPM
 NIOSH* DHHS #92-100,1992
 NOHS 1974: HZD 31500; NIS 430; TNF 157709; NOS 242; TNE 2088926
 NOES 1983: HZD 31500; NIS 334; TNF 86077; NOS 222; TNE 2069125; TFE 1014002
 EPA GENETOX PROGRAM 1988, POSITIVE: RODENT DOMINANT LETHAL
 EPA GENETOX PROGRAM 1988, NEGATIVE: ASPERGILLUS-FORWARD MUTATION;
 SHE-CLONAL ASSAY
 EPA GENETOX PROGRAM 1988, NEGATIVE: CELL TRANSFORM.-RLV F344 RAT EMBRYO
 EPA GENETOX PROGRAM 1988, NEGATIVE: IN VITRO CYTOGENETICS-NONHUMAN;
 MAMMALIAN MICRONUCLEUS
 EPA GENETOX PROGRAM 1988, NEGATIVE: N CRASSA-ANEUPLOIDY; HISTIDINE
 REVERSION-AMES TEST
 EPA GENETOX PROGRAM 1988, NEGATIVE: IN VITRO SCE-HUMAN LYMPHOCYTES; IN
 VITRO SCE-HUMAN
 EPA GENETOX PROGRAM 1988, NEGATIVE: IN VITRO SCE-NONHUMAN; SPERM
 MORPHOLOGY-MOUSE
 EPA GENETOX PROGRAM 1988, NEGATIVE/LIMITED: CARCINOGENICITY-MOUSE/RAT
 EPA TSCA SECTION 8(B) CHEMICAL INVENTORY
 EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES
 EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, MARCH 1999
 NIOSH ANALYTICAL METHOD, 1994: ETHANOL IN BLOOD, 8002

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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 P A G E 8

- - - - -

CATALOG #: 27764-9
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DENATURED

NIOSH ANALYTICAL METHOD, 1994: ALCOHOLS I, 1400
NTP CARCINOGENESIS STUDIES; ON TEST (TWO YEAR STUDIES), FEBRUARY 1999

U.S. INFORMATION
5.0% METHANOL 67-56-1
THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS.

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. ALDRICH 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.

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