Material Safety Data Sheet

SECTION 1. - - - - - - - - - - CHEMICAL IDENTIFICATION - - - - - - - - -
CATALOG #: E2626
NAME: ETHYLENEDIAMINE, 99%

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - -
CAS #: 107-15-3
MF: C2H8N2
EC NO: 203-468-6
SYNONYMS:
AETHALDIAMIN (GERMAN) * AETHYLENEDIAMIN (GERMAN) * 1,2-DIAMINOETHAN
(GERMAN) * 1,2-DIAMINO-ETHAAAN (DUTCH) * 1,2-DIAMINOETHANE (OSHA) * 1,
2-DIAMINO-ETHAN (ITALIAN) * DIMETHYLENEDIAMINE * ETHYLENEDIAMINE
(DUTCH) * ETHYLENEDIAMINE * ETHYLENEDIAMINE * 1,2-ETHYLENEDIAMINE *
ETHYLENEDIAMINE (ACGIH:OSHA) * ETHYLENE-DIAMINE (FRENCH) * NCI-C60402
*

SECTION 3. - - - - - - - - - - HAZARDS IDENTIFICATION - - - - - - - - -
LABEL PRECAUTIONARY STATEMENTS
FLAMMABLE
CORROSIVE
CAUSES BURNS.
HARMFUL IN CONTACT WITH SKIN AND IF SWALLOWED.
MAY CAUSE SENSITIZATION BY INHALATION AND SKIN CONTACT.
LACHRYMAT.
READILY ABSORBED THROUGH SKIN.
TARGET ORGAN(S):
KIDNEYS
LIVER
KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING.
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.
DO NOT BREATHE VAPOR.

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.
ASSURE ADEQUATE FLUSHING OF THE EYES BY SEPARATING THE EYELIDS
WITH FINGERS.

SECTION 5. - - - - - - - - - - FIRE FIGHTING MEASURES - - - - - - - - -
EXTINGUISHING MEDIA
CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.
USE WATER SPRAY TO COOL FIRE-EXPOSED CONTAINERS.

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

UNUSUAL FIRE AND EXPLOSIONS HAZARDS
FLAMMABLE LIQUID.
VAPOR MAY TRAVEL CONSIDERABLE DISTANCE TO SOURCE OF IGNITION AND
FLASH BACK.
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.
CONTAINER EXPLOSION MAY OCCUR UNDER FIRE CONDITIONS.
FORMS EXPLOSIVE MIXTURES IN AIR.
SECTION 6. ACCIDENTAL RELEASE MEASURES
- EVACUATE AREA.
- SHUT OFF ALL SOURCES OF IGNITION.
- 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.

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

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
- STORE IN A COOL DRY PLACE.
- KEEP TIGHTLY CLOSED.
- KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME.
- 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.
- USE NONSPARKING TOOLS.
- DO NOT BREATHE VAPOR.
- DO NOT GET IN EYES, ON SKIN, OR CLOTHING.
- WASH THOROUGHLY AFTER HANDLING.
- REMOVE AND WASH CONTAMINATED CLOTHING PROMPTLY.
- DISCARD CONTAMINATED SHOES.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES
- BOILING POINT: 118 C
- MELTING POINT: 8.5 C
- FLASHPOINT: 93 F
- EXPLOSION LIMITS IN AIR:
  - UPPER 16%
  - LOWER 2.7%
- AUTOIGNITION TEMPERATURE: 716 F
- VAPOR PRESSURE: 10MM 20 C
- SPECIFIC GRAVITY: 0.899
- VAPOR DENSITY: 2.07

SECTION 10. STABILITY AND REACTIVITY
- CONDITIONS TO AVOID ABSORBS CO2 FROM AIR.
- INCOMPATIBILITIES SENSITIVE TO AIR. PROTECT FROM MOISTURE.
- OXIDIZING AGENTS PHOSPHORUS HALIDES
- ALDEHYDES ORGANIC HALIDES
- HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS CARBON MONOXIDE, CARBON DIOXIDE AMINES AMMONIA
- HAZARDOUS POLYMERIZATION WILL NOT OCCUR.

SECTION 11. TOXICOLOGICAL INFORMATION

ACUTE EFFECTS
- MAY BE HARMFUL IF INHALED.
- HARMFUL IF SWALLOWED OR ABSORBED THROUGH SKIN.
- 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.
- REPEATED EXPOSURE MAY CAUSE ASTHMA.
- EXPOSURE CAN CAUSE:
  - STOMACH PAINS, VOMITING, DIARRHEA.
  - MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTIONS.

CHRONIC EFFECTS
TARGET ORGAN(S):
KIDNEYS
LIVER
BLOOD
LUNGS

RTECS #: KH8575000
1,2-PETHANEDIAMINE

IRRITATION DATA
SKIN-RAT 450 MG OPEN MOD
SKIN-RAT 10 MG/24H OPEN SEV
EYE-RAT 750 MG SEV
EYE-RAT 750 MG/24H SEV

TOXICITY DATA
ORL-RAT LD50:1200 MG/KG
IPR-RAT LD50:76 MG/KG
SCU-RAT LD50:300 MG/KG
ORL-MUS LD50:1 GM/KG
IHL-MUS LC50:300 MG/M3
IPR-MUS LD50:1200 MG/KG
SKN-RAT LD50:730 UL/KG
ORL-GPG LD50:470 MG/KG

TARGET ORGAN DATA
PERIPHERAL NERVE AND SENSATION (PARESTHESIA)
BEHAVIORAL (SOMNOLENCE)
BEHAVIORAL (ATAXIA)
GASTROINTESTINAL (OTHER CHANGES)
KIDNEY, URETER, BLADDER (OTHER CHANGES)

ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES
(RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR
COMPLETE INFORMATION.

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

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: 612-006-00-6
FLAMMABLE.
CORROSIVE
R 10
FLAMMABLE.
R 21/22
HARMFUL IN CONTACT WITH SKIN AND IF SWALLOWED.
R 34
CAUSES BURNS.
R 42/43
MAY CAUSE SENSITIZATION BY INHALATION AND SKIN CONTACT.
S 23
DO NOT BREATHE VAPOR.
S 26
IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF
WATER AND SEEK MEDICAL ADVICE.
S 36/37/39
WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE
PROTECTION.
S 45
IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE
IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).

REVIEWS, STANDARDS, AND REGULATIONS
OEI-MAX
ACGIH TLV-NOT CLASSIFIABLE AS A HUMAN CARCINOGEN DTLVs* TLV/BEI,1999
ACGIH TLV-TWA 10 PPM (SKIN) DTLVs* TLV/BEI,1999

http://infonew.sigma-aldrich.com/cgi-bin/gx.cgi/Applogic+MSDSInfo.ReturnMSDS
EPA PIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION
FERMAC 54, 7740, 1989
MSHA STANDARD-AIR: TWA 10 PPM (25 MG/M3)
DTLV* 3, 109, 1971
OSHA PEL (GEN INDU): 8H TWA 10 PPM (25 MG/M3)
CFRGRB 29.1910.1000, 1994
OSHA PEL (CONSTRUCT): 8H TWA 10 PPM (25 MG/M3)
CFRGRB 29.1926.55, 1994
OSHA PEL (SHIPYARD): 8H TWA 10 PPM (25 MG/M3)
CFRGRB 29.1915.1000, 1993
OSHA PEL (FED CONT): 8H TWA 10 PPM (25 MG/M3)
CFRGRB 41.50-204.50, 1994
OEL-AUSTRALIA: TWA 10 PPM (25 MG/M3), JAN1993
OEL-AUSTRIA: MAK 10 PPM (25 MG/M3), JAN1999
OEL-BELGIUM: TWA 10 PPM (25 MG/M3), JAN1993
OEL-DENMARK: TWA 10 PPM (25 MG/M3), JAN1999
OEL-FINLAND: TWA 10 PPM (25 MG/M3), STEL 20 PPM (50 MG/M3), JAN1999
OEL-FRANCE: VME 10 PPM (25 MG/M3), VLE 15 PPM (35 MG/M3), JAN1999
OEL-GERMANY: MAK 10 PPM (25 MG/M3), JAN1999
OEL-JAPAN: OEL 10 PPM (25 MG/M3), SKIN, JAN1999
OEL-THE NETHERLANDS: MAC-TOG 10 PPM (25 MG/M3), JAN1999
OEL-NORWAY: TWA 10 PPM (25 MG/M3), JAN1999
OEL-THE PHILIPPINES: TWA 10 PPM (25 MG/M3), JAN1993
OEL-POLAND: MAC(TWA) 2 MG/M3, MAC(STEL) 6 MG/M3, JAN1999
OEL-RUSSIA: TWA 10 PPM, STEL 2 MG/M3, JAN1993
OEL-SWEDEN: NGV 10 PPM (25 MG/M3), KTV 15 PPM (35 MG/M3), JAN1999
OEL-SWITZERLAND: MAK-W 1000 PPM (6400 MG/M3), JAN1999
OEL-TURKEY: TWA 10 PPM (25 MG/M3), JAN1993
OEL-UNITED KINGDOM: TWA 10 PPM (25 MG/M3), SEP2000
OEL IN ARGENTINA, BULGARIA, COLOMBIA, JORDAN, KOREA CHECK ACGIH TLV;
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV
NIOSH REL TO ETHYLENEDIAMINE-AIR:10H TWA 10 PPM
NIOSH* DHHS #92-100, 1992
NOHS 1974: HD 32220; NIS 33; TNF 2126; NOS 35; TNE 15918
NOES 1983: HD 32220; NIS 77; TNF 6260; NOS 85; TNE 133007; TFE 29888
EPA GENETOX PROGRAM 1988, NEGATIVE: CHO GENE MUTATION
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, JANUARY 2001
NIOSH ANALYTICAL METHOD, 1994: ETHYLENEDIAMINE, 2540
OSHA ANALYTICAL METHOD #16-60

SECTION 16. OTHER INFORMATION-
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