



## MATERIAL SAFETY DATA SHEET

2522 Plantation Center Drive  
Matthews, NC 28105  
(704) 845 9440

www.ciscochem.com

PRODUCT NAME: Diethanolamine

CHEMICAL NAME: Diethanolamine

SYNONYMS:

CAS NUMBER: 111-42-2

PROPERTIES: ODOR & APPEARANCE: colorless deliquescent crystals or clear, viscous, liquids with mild ammonia odour  
ODOUR THRESHOLD: 0.27ppm  
VAPOUR PRESSURE: below 0.01mmHg/0.001kPa (20 c)  
EVAPORATION RATE (Butyl Acetate=1): not known – con considered volatile  
VAPOUR DENSITY (air=1): 3.6  
BOILING RANGE: 270 c/518 F  
FREEZING POINT: 28 c/82 F- NOTE: clean product may supercool to – 20 c before freezing  
SPECIFIC GRAVITY: 1.097 (20/20 c)  
WATER SOLUBILITY: 954 grams per litre (20 c)  
IN OTHER SOLVENTS: very soluble in alcohols, ketones; slightly soluble in benzene: insoluble in heptane  
VISCOSITY: 580 centipoise (25 c)  
PH: 11 – moderately strong alkali

HAZARDS: EFFECTS OF CHRONIC EXPOSURE  
GENERAL: prolonged exposure may cause dermatitis and eczema  
SENSITISING: not a sensitiser  
CARCINOGENIC: not considered a tumorigen in humans or animals, however, in metalworking fluids (and some other applications) where nitrites are present, carcinogenic N-nitrosodiethanolamine may form  
REPRODUCTIVE EFFECT: no known effect in humans  
SYNERGISTIC WITH: existing skin condition  
LD50: 680mg/kg (oral, rat), 3300mg/kg (oral, mouse), 2000mg/kg (oral, guinea pig), 2200mg/kg (oral, rabbit); 7640m/kg (skin, rabbit). 11,900mg/kg (skin, guinea pig)  
LC50: not known  
NOTE : various values given for rat oral LD50, ranging up to 3500mg/kg.

FIRE FIGHTING Fire Fighting Measures: FLASH POINT: 138 c/280 F (closed cup)  
MEASURES: AUTOIGNITION TEMPERATURE: 662 c/1224 F  
FLAMMABLE LIMITS: 1.6 – 9.8  
COMBUSTION PRODUCTS: carbon monoxide, nitrogen oxides, ammonia, smoke  
FIREFIGHTING PRECAUTIONS: as for flammables sustaining fire; firefighters must wear SCBA  
STATIC DISCHARGE: cannot accumulate a static charge  
MECHANICAL IMPACT: not sensitive  
CHEMICAL STABILITY: stable; will not polymerize  
REACTIVE WITH: strong oxidizing agents (may react violently); violent reaction with some acids and acid anhydrides; may react with halogenated hydrocarbons; corrodes zinc, copper and copper alloys (brass, bronze, etc.)  
NOTE: may react with nitrous acid, certain NO x and nitrites to form N-nitrosodiethanolamine – a carcinogen  
DECOMPOSITION PRODUCTS: none apart from Hazardous Combustion Products



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**PERSONAL PROTECTION:** HANDS: butyl or neoprene rubber, or "Viton" gloves recommended – consult supplier to confirm suitability  
**MEASURES:** EYES: safety glasses with side shields or chemical goggles – always protect the eyes  
VENTILATION: not required unless product mist or vapour is created by handling  
CLOTHING: no special protective clothing required

**EMERGENCY & FIRST AID PROCEDURES:** SKIN: Wash with soap and plenty of water. Remove contaminated clothing and do not reuse until thoroughly cleaned or laundered.  
EYES: Wash eyes with plenty of water, holding eyelids open. Seek medical assistance promptly if there is irritation.  
INHALATION: Remove from contaminated area promptly. CAUTION: Rescuer must not endanger himself! If breathing stops, administer artificial respiration and seek medical aid promptly.  
INGESTION: Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim's head below hips to prevent inhalation of vomiting material. Seek medical help promptly.  
NOTE: Inadvertent inhalation of vomiting material may seriously damage the lungs. The risk and danger of this is greater than the risk of poisoning through absorption of this relatively low-toxic product. The stomach should only be emptied under medical supervision, after the installation of an airway to protect the lungs.

**EXPOSURE LIMITS:** TWAEV ppm: 0.46  
LD50 ORAL: 680  
SKIN (mg/kg): 7690  
LC50 ppm INHALATION: not known  
Diethanolamine is exempted from the requirement of a tolerance when used as a stabilizer for formulations used before crop emerges from soil in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only.  
OHA STANDARDS: Vacated 1989 OSHA PEL TWA 3 ppm (15mg/cu m) is still enforced in some states.  
NIOSH RECOMMENDATIONS: Recommended Exposure Limit: 19 Hr Time-Weighted Avg: 3ppm (15mg/cu m.)  
THRESHOLD LIMIT VALUES: 8 hr Time Weighted Avg (TWA): 2mg/cu m, skin. Excursion Limit Recommendation: Excursions in worker exposure levels may exceed three times the TLV-TWA no more than a total of 30 min during a work day, and under no circumstances should they exceed five times the TLV-TWA, provided that the TLV-TWA is not exceeded.  
ATMOSPHERIC STANDARDS: Listed as a hazardous air pollutant (HAP) known or suspected to cause serious health problems. The Clean Air Act, as amended in 1990, directs EPA to set standards requiring major sources to sharply reduce routine emissions of toxic pollutants. EPA is required to establish and phase in specific performance based standards for all air emission sources that emit one or more of the listed pollutants. Ethanolamine is included on this list.  
TSCA REQUIREMENTS: Pursuant to section 8(d) of TSCA, EPA promulgated a model Health and Safety Data Reporting Rule. The section 8(d) model rule requires manufacturers, importers, and processors of listed chemical substances and mixtures to submit to EPA copies and lists of unpublished health and safety studies. Diethanolamine is included on this list. !  
Section 8(a) of TSCA required manufacturers of this chemical substance to report preliminary assessment information concerned with production, use, and exposure to EPA as cited in the preamble of the FIFRA REQUIREMENTS: Diethanolamine is exempted from the requirement of a tolerance when used as a stabilizer, inhibitor for formulations used before crop emerges from soil in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only.  
FDA REQUIREMENTS: Diethanolamine is an indirect food additive for use only as a component of

adhesives.

**TOXICOLOGICAL EFFECTS OF ACUTE EXPOSURE**

**INFORMATION:** SKIN CONTACT: may irritate – severely if allowed to remain in contact with skin  
SKIN ABSORPTION: ye; toxic effects may occur by this route  
EYE CONTACT: severely irritation, may damage or even burn eyes permanently  
INHALATION: vapour or mist may irritate, but low vapour pressure and high viscosity greatly reduce risk of inhalation  
INGESTION: severely irritation to mouth, throat and stomach; stomach pain, nausea, diarrhoea  
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**ACCIDENTAL LEAK PRECAUTION:** dyke to control spillage and prevent environmental contamination  
**RELEASE HANDLING SPILL:** ventilate contaminated area; recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep, shovel, & store in closed containers for recycling or disposal  
**PROCEDURES WASTE DOSPOSAL:** DO NOT FLUSH IN SEWER; may be incinerated in approved facility after mixing a flammable product  
**ENVIROINFO:** this product cannot accumulate in living tissue, this product is readily and rapidly biodegradeable in the presence of oxygen; 97% biodegradation in 5 days in sewage water; estimated half life in air of approximately 4 hours

**CARCINOGENIC NE  
PROPERTIES &  
NOTIFICATIONS:**

**TRANSPORT Not Regulated.  
INFORMATION:**

**HANDLING & STORAGE:** Store and use in a cool dry environment, away from oxidizing agents and other substances listed. NOTE: Product is deliquescent and avidly absorbs moisture from air. NOTE: Product will self-neutralise with atmospheric carbon dioxide if not kept sealed. Use with adequate ventilation. Do not cut, drill, weld or grind on or near this container. Avoid prolonged contact with skin and wash work clothes frequently. An eye bath and safety shower should be available near workplace.