

# Material Safety Data Sheet

## Diethanolamine, 99%

ACC# 00532

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Diethanolamine, 99%

**Catalog Numbers:** AC113920000, AC113920010, AC113920025, AC113920050, AC113925000

**Synonyms:** Bis(2-hydroxyethyl)amine; DEA; Diethylolamine; 2,2'-Dihydroxydiethylamine; 2,2'-Iminodiethanol; N,N-Diethanolamine.

**Company Identification:**

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

**For information in North America, call:** 800-ACROS-01

**For emergencies in the US, call CHEMTREC:** 800-424-9300

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
111-42-2	Diethanolamine	99	203-868-0

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: white solid or liquid.

**Warning!** Causes severe eye irritation. Causes skin irritation. May be harmful if swallowed, inhaled, or absorbed through the skin. May cause respiratory tract irritation. Repeated exposure may cause liver and kidney damage. Hygroscopic (absorbs moisture from the air).

**Target Organs:** Blood, kidneys, liver, eyes, skin.

#### Potential Health Effects

**Eye:** Causes severe eye irritation. May cause transient corneal injury. May cause inflammation of the cornea and iris. Dow Chemical eye testing data in rabbits indicates that injury is not permanent. "All eyes were healed by 7 days."

**Skin:** Causes skin irritation. Prolonged or widespread skin contact may result in the material being absorbed in harmful amounts.

**Ingestion:** Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May be harmful if swallowed.

**Inhalation:** May cause respiratory tract irritation. Material has a very low vapor pressure at room temperature, so inhalation exposures are not expected unless material is heated or misted. Dow Chemical says to avoid temperatures above 250°C as it may undergo self-sustaining thermal decomposition.

**Chronic:** Chronic exposure may cause blood effects. Prolonged or repeated exposure may cause liver or kidney damage.

### Section 4 - First Aid Measures

**Eyes:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.

**Skin:** In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.

**Ingestion:** If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Notes to Physician:** Treat symptomatically and supportively.

### Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.

**Extinguishing Media:** Use water fog, dry chemical, carbon dioxide or alcohol type foam.

**Flash Point:** 138 deg C ( 280.40 deg F)

**Autoignition Temperature:** 662 deg C ( 1,223.60 deg F)

**Explosion Limits, Lower:**1.6

**Upper:** 9.8

**NFPA Rating:** (estimated) Health: 2; Flammability: 1; Instability: 0

### Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up or absorb material, then place into a suitable clean, dry, closed container for disposal. Avoid generating dusty conditions. Provide ventilation.

## Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Avoid breathing dust, vapor, mist, or gas. Do not get in eyes. Avoid contact with skin and clothing. Do not add nitrites or other nitrosating agents. A nitrosamine, which may cause cancer, may be formed.

**Storage:** Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Do not store in aluminum containers. Do not store in copper or copper alloy storage vessels.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Diethanolamine	2 mg/m <sup>3</sup> TWA; Skin - potential significant contribution to overall exposure by the cutaneous route	3 ppm TWA; 15 mg/m <sup>3</sup> TWA	none listed

**OSHA Vacated PELs:** Diethanolamine: 3 ppm TWA; 15 mg/m<sup>3</sup> TWA

### Personal Protective Equipment

**Eyes:** Wear chemical splash goggles.

**Skin:** Wear appropriate gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## Section 9 - Physical and Chemical Properties

**Physical State:** Solid or liquid

**Appearance:** white

**Odor:** Mild ammoniacal odor.

**pH:** 11.0 (0.1N aq soln)

**Vapor Pressure:** < 0.01 mm Hg @ 20 deg C

**Vapor Density:** 3.65 (air=1)

**Evaporation Rate:** <0.01(n-BuAc=1).

**Viscosity:** 352 cps 30 deg C

**Boiling Point:** 268 deg C

**Freezing/Melting Point:** 28 deg C

**Decomposition Temperature:** Not available.

**Solubility:** Soluble in water.

**Specific Gravity/Density:** 1.09

**Molecular Formula:** C<sub>4</sub>H<sub>11</sub>NO<sub>2</sub>

**Molecular Weight:** 105.14

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures. Amines absorb carbon dioxide from the air to form carbamate salts. Deliquescent (tending to absorb atmospheric water vapor and become liquid).

**Conditions to Avoid:** Temperatures above 250°C, exposure to moist air or water.

**Incompatibilities with Other Materials:** Strong oxidizing agents, strong acids, aluminum, copper, copper alloys, galvanized iron, zinc.

**Hazardous Decomposition Products:** Nitrogen oxides, carbon monoxide, carbon dioxide.

**Hazardous Polymerization:** Has not been reported.

## Section 11 - Toxicological Information

### RTECS#:

CAS# 111-42-2: KL2975000

### LD50/LC50:

CAS# 111-42-2:

- Dermal, guinea pig: LD50 = 11900 uL/kg;
- Draize test, rabbit, eye: 5500 mg Severe;
- Draize test, rabbit, eye: 750 ug/24H Severe;
- Draize test, rabbit, skin: 500 mg/24H Mild;
- Oral, mouse: LD50 = 3300 mg/kg;
- Oral, rabbit: LD50 = 2200 mg/kg;
- Oral, rat: LD50 = 620 uL/kg;
- Skin, rabbit: LD50 = 7640 uL/kg;

### Carcinogenicity:

CAS# 111-42-2: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** No information found  
**Teratogenicity:** No information found  
**Reproductive Effects:** Adverse reproductive effects have occurred in experimental animals.  
**Mutagenicity:** No information found  
**Neurotoxicity:** No information found  
**Other Studies:**

**Section 12 - Ecological Information**

**Ecotoxicity:** Fish: Bluegill/Sunfish: 1800mg/L; 24H; Fish: Goldfish: 800mg/L; 24H; Fish: Fathead Minnow: LC50 = >100.00 mg/L; 96 Hr.; Static Condition Bacteria: Phytobacterium phosphoreum: EC50 = 5000 mg/L; 5 minutes; Microtox test No data available.  
**Environmental:** Terrestrial: Expected to biodegrade fairly rapidly following acclimation (half-life on the order of days to weeks). Expected to leach in soil. Aquatic: If released to water, diethanolamine (DEA) should biodegrade. Atmospheric: Expected to exist almost entirely in the vapor phase in the atmosphere. Reaction with photochemically generated hydroxyl radicals is expected to be the dominant removal mechanism (half-life 4 hours). Not expected to bioconcentrate.  
**Physical:** No information found.  
**Other:** For more information, see "HANDBOOK OF ENVIRONMENTAL FATE AND EXPOSURE DATA."

**Section 13 - Disposal Considerations**

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.  
**RCRA P-Series:** None listed.  
**RCRA U-Series:** None listed.

**Section 14 - Transport Information**

	US DOT	Canada TDG
<b>Shipping Name:</b>	Not Regulated	Not Regulated
<b>Hazard Class:</b>		
<b>UN Number:</b>		
<b>Packing Group:</b>		

**Section 15 - Regulatory Information**

**US FEDERAL**

**TSCA**  
CAS# 111-42-2 is listed on the TSCA inventory.  
**Health & Safety Reporting List**  
CAS# 111-42-2: Effective 4/13/89, Sunset 6/30/98  
**Chemical Test Rules**  
None of the chemicals in this product are under a Chemical Test Rule.  
**Section 12b**  
None of the chemicals are listed under TSCA Section 12b.  
**TSCA Significant New Use Rule**  
None of the chemicals in this material have a SNUR under TSCA.  
**CERCLA Hazardous Substances and corresponding RQs**  
CAS# 111-42-2: 100 lb final RQ; 45.4 kg final RQ  
**SARA Section 302 Extremely Hazardous Substances**  
None of the chemicals in this product have a TPQ.  
**SARA Codes**  
CAS # 111-42-2: immediate, delayed.  
**Section 313**  
This material contains Diethanolamine (CAS# 111-42-2, 99%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR  
**Clean Air Act:**  
CAS# 111-42-2 is listed as a hazardous air pollutant (HAP).  
This material does not contain any Class 1 Ozone depletors.  
This material does not contain any Class 2 Ozone depletors.  
**Clean Water Act:**  
None of the chemicals in this product are listed as Hazardous Substances under the CWA.  
None of the chemicals in this product are listed as Priority Pollutants under the CWA.  
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.  
**OSHA:**  
None of the chemicals in this product are considered highly hazardous by OSHA.  
**STATE**  
CAS# 111-42-2 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

**California Prop 65**

California No Significant Risk Level: None of the chemicals in this product are listed.

**European/International Regulations  
European Labeling in Accordance with EC Directives**

**Hazard Symbols:**

XN

**Risk Phrases:**

R 22 Harmful if swallowed.  
R 38 Irritating to skin.  
R 41 Risk of serious damage to eyes.  
R 48/22 Harmful : danger of serious damage to health by prolonged exposure if swallowed.

**Safety Phrases:**

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 46 If swallowed, seek medical advice immediately and show this container or label.

**WGK (Water Danger/Protection)**

CAS# 111-42-2: 1

**Canada - DSL/NDSL**

CAS# 111-42-2 is listed on Canada's DSL List.

**Canada - WHMIS**

This product has a WHMIS classification of D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

CAS# 111-42-2 is listed on the Canadian Ingredient Disclosure List.

**Section 16 - Additional Information**

**MSDS Creation Date:** 6/08/1999

**Revision #6 Date:** 5/12/2006

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