

Material Safety Data Sheet

Diethylamine, 99+%

ACC# 00539

Section 1 - Chemical Product and Company Identification

MSDS Name: Diethylamine, 99+%

Catalog Numbers: AC149450000, AC149450010, AC149450025, AC149450050, AC149450200, AC149455000 AC149455000

Synonyms: N,N-Diethylamine; N-Ethylethanamine; Diethylamine; DEN; DEA.

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
109-89-7	Diethylamine	> 99	203-716-3

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: colorless liquid. Flash Point: -28 deg C.

Danger! Extremely flammable liquid and vapor. Vapor may cause flash fire. Causes eye and skin burns. Causes digestive and respiratory tract burns. Harmful if absorbed through the skin. May be harmful if inhaled. May be harmful if swallowed.

Target Organs: Eyes, skin, mucous membranes.

Potential Health Effects

Eye: Causes eye burns. Vapors may cause eye irritation. A 10% aqueous solution of DEN caused severe eye burns in rabbits.

Skin: Causes skin burns. May be absorbed through the skin in harmful amounts. Prolonged or repeated contact may dry/defat the skin and cause irritation. The dermal sensitization potential of diethylamine was evaluated in mice and results showed that it is not a skin sensitizer.

Ingestion: Causes gastrointestinal tract burns. May be harmful if swallowed.

Inhalation: Inhalation may produce coughing, nausea, and pulmonary edema. Animal inhalation studies have shown lung, liver and heart damage from overexposure.

Chronic: Chronic exposure may cause effects similar to those of acute exposure.

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, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.

Ingestion: If swallowed, do NOT induce vomiting. Get medical aid immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.

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: Use water spray to keep fire-exposed containers cool. Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products.

Extremely flammable liquid and vapor. Vapor may cause flash fire. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.

Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Water may be ineffective.

Flash Point: -28 deg C (-18.40 deg F)

Autoignition Temperature: 312 deg C (593.60 deg F)

Explosion Limits, Lower:1.8

Upper: 10.1

NFPA Rating: (estimated) Health: 3; Flammability: 3; Instability: 0

Section 6 - Accidental Release Measures

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

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Use water spray to dilute spill to a non-flammable mixture. Use water spray to disperse the gas/vapor. Remove all sources of ignition. Provide ventilation. Approach

spill from upwind.

Section 7 - Handling and Storage

Handling: Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Keep away from heat, sparks and flame.

Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from organic halogens. Keep away from acids.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Diethylamine	5 ppm TWA; 15 ppm STEL; Skin - potential significant contribution to overall exposure by the cutaneous route	10 ppm TWA; 30 mg/m ³ TWA 200 ppm IDLH	25 ppm TWA; 75 mg/m ³ TWA

OSHA Vacated PELs: Diethylamine: 10 ppm TWA; 30 mg/m³ TWA

Personal Protective Equipment

Eyes: Wear chemical splash goggles and face shield.

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: Liquid

Appearance: colorless

Odor: fishy ammoniacal

pH: very alkaline

Vapor Pressure: 195 mm Hg @ 20 deg C

Vapor Density: 2.5

Evaporation Rate: 16.9 (butyl acetate=1)

Viscosity: Not available.

Boiling Point: 55-58 deg C

Freezing/Melting Point: -50 deg C

Decomposition Temperature: Not available.

Solubility: Miscible in water

Specific Gravity/Density: 0.71

Molecular Formula: C₄H₁₁N

Molecular Weight: 73.13

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Ignition sources, excess heat.

Incompatibilities with Other Materials: Strong oxidizing agents, acids, epichlorohydrin, cellulose nitrate, some metals.

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

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 109-89-7: HZ8750000

LD50/LC50:

CAS# 109-89-7:

Inhalation, rat: LC50 = 4000 ppm/4H;

Oral, mouse: LD50 = 500 mg/kg;

Oral, rat: LD50 = 540 mg/kg;

Skin, rabbit: LD50 = 820 uL/kg;

Carcinogenicity:

CAS# 109-89-7: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: Edema of the epithelium of the cornea, generally without pain, has been produced by amine vapors, causing colored haloes to be seen around lights, usually in the evening, after industrial exposure to the vapors of various amines.

Teratogenicity: No data available.

Reproductive Effects: No data available.

Mutagenicity: See actual entry in RTECS for complete information.

Neurotoxicity: No data available.

Other Studies:

Section 12 - Ecological Information

No information available.

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
Shipping Name:	DIETHYLAMINE	DIETHYLAMINE
Hazard Class:	3	3(8)
UN Number:	UN1154	UN1154
Packing Group:	II	II

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 109-89-7 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 109-89-7: Effective 6/1/87, Sunset 6/1/97

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# 109-89-7: 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 # 109-89-7: immediate, delayed, fire.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 109-89-7 is listed as a Hazardous Substance 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# 109-89-7 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:

F C

Risk Phrases:

R 11 Highly flammable.

R 20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

R 35 Causes severe burns.

Safety Phrases:

- S 16 Keep away from sources of ignition - No smoking.
- S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S 29 Do not empty into drains.
- S 3 Keep in a cool place.
- 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).

WGK (Water Danger/Protection)

CAS# 109-89-7: 1

Canada - DSL/NDSL

CAS# 109-89-7 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B2, D1B, E.

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# 109-89-7 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information
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MSDS Creation Date: 11/13/1997

Revision #4 Date: 10/03/2005

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.