

Material Safety Data Sheet

Di-n-butylamine

ACC# 06410

Section 1 - Chemical Product and Company Identification

MSDS Name: Di-n-butylamine

Catalog Numbers: AC112950000, AC112950010, AC112950025, AC112950050, AC112955000, AC219820000, AC219820500, AC219822500, O2199-1, O2199-500

Synonyms: N-Butyl-1-butanamine; Di-n-butylamine; secondary alkyl amine.

Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

| CAS# | Chemical Name | Percent | EINECS/ELINCS |
|----------|-----------------|---------|---------------|
| 111-92-2 | Di-n-butylamine | 99 | 203-921-8 |

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless liquid. Flash Point: 39 deg C.

Danger! Causes eye and skin burns. Causes digestive and respiratory tract burns. **Flammable liquid and vapor.** Harmful if swallowed, inhaled, or absorbed through the skin.

Target Organs: Eyes, skin, mucous membranes.

Potential Health Effects

Eye: Contact with liquid or vapor causes severe burns and possible irreversible eye damage. Lachrymator (substance which increases the flow of tears). Low vapor concentrations may cause a temporary visual disturbance known as 'blue haze' or 'halo vision'.

Skin: Harmful if absorbed through the skin. Causes skin burns. Repeated or prolonged skin contact with some amines can cause an allergic skin reaction. In one animal test, di-n-butylamine only sensitized one animal.

Ingestion: Harmful if swallowed. Causes gastrointestinal tract burns.

Inhalation: Harmful if inhaled. May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema.

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: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Use water spray to keep fire-exposed containers cool. Flammable liquid and vapor. 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: Use water spray, dry chemical, carbon dioxide, or appropriate foam.

Flash Point: 39 deg C (102.20 deg F)

Autoignition Temperature: 260 deg C (500.00 deg F)

Explosion Limits, Lower: .60

Upper: 6.80

NFPA Rating: (estimated) Health: 3; Flammability: 2; 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. Avoid runoff into storm sewers and ditches which lead to waterways. Provide ventilation. Approach spill from upwind. Use water spray to cool and disperse vapors and protect personnel.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Do not ingest or inhale. 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 sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

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 ventilation to keep airborne concentrations low.

Exposure Limits

| Chemical Name | ACGIH | NIOSH | OSHA - Final PELs |
|-----------------|-------------|-------------|-------------------|
| Di-n-butylamine | none listed | none listed | none listed |

OSHA Vacated PELs: Di-n-butylamine: No OSHA Vacated PELs are listed for this chemical.

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: clear, colorless

Odor: amine-like - malodorous

pH: 12.2 (0.1M aq soln)

Vapor Pressure: 2.59 mm Hg @ 25 deg C

Vapor Density: 4.46 (air=1)

Evaporation Rate: Not available.

Viscosity: 0.9 mPa s 20 C

Boiling Point: 159 deg C

Freezing/Melting Point: -62 deg C

Decomposition Temperature: Not available.

Solubility: Slightly soluble.

Specific Gravity/Density: 0.76

Molecular Formula: C8H19N

Molecular Weight: 129.24

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. Amines absorb carbon dioxide from the air to form carbamate salts.

Conditions to Avoid: Ignition sources.

Incompatibilities with Other Materials: Strong oxidizing agents, strong acids.

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

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 111-92-2: HR7780000

LD50/LC50:

CAS# 111-92-2:

Oral, mouse: LD50 = 290 mg/kg;

Oral, rat: LD50 = 189 mg/kg;

Skin, rabbit: LD50 = 770 mg/kg;

Inhalation, rats LC50: > 2.0 mg/l/1H (Mortality was not observed.) Air Products & Chemicals; Inhalation, rats LC50: > 573 ppm/1H (Mortality was not observed.) Huntingdon Research Centre; Inhalation, rats LC50: 1.15 mg/l/4H. Huntingdon Research Centre.

Carcinogenicity:

CAS# 111-92-2: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No data available.

Teratogenicity: No data available.

Reproductive Effects: No data available.

Mutagenicity: No data available.

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: | DI-N-BUTYLAMINE | Di-n-BUTYLAMINE |
| Hazard Class: | 8 | 8 |
| UN Number: | UN2248 | UN2248 |
| Packing Group: | II | II |

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 111-92-2 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 111-92-2: Effective 6/1/87, Sunset 12/19/95

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

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 111-92-2: 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 depleters.

This material does not contain any Class 2 Ozone depleters.

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# 111-92-2 can be found on the following state right to know lists: New Jersey, Pennsylvania, 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 10 Flammable.

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

Safety Phrases:

WGK (Water Danger/Protection)

CAS# 111-92-2: 1

Canada - DSL/NDSL

CAS# 111-92-2 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B3, 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# 111-92-2 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 12/12/1997

Revision #6 Date: 6/15/2006

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.