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Safety & Environmental
Health

SIGMA-ALDRICH

Material Safety Data Sheet

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Section 1 - Product and Company Information

Product Name 9-BBN, 0.5M solution in tetrahydrofuran
Product Number 151076
Brand Aldrich Chemical

Company Address Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS, MO 63103 US
City, State, Zip, Country
Technical Phone: 800-325-5832
Fax: 800-325-5052
Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

| Substance Name | CAS # | SARA 313 | EC no | Annex I Index Number |
|---|----------|----------|----------|----------------------|
| 9-BBN, 0.5M SOLUTION IN TETRAHYDROFURAN | None | No | | |
| Ingredient Name | CAS # | Percent | SARA 313 | |
| TETRAHYDROFURAN (Inhibitor free) | 109-99-9 | 93.140 % | No | |
| 9-BBN, CRYSTALLINE | 280-64-8 | 6.860 % | | |

Formula
Synonyms

Section 3 - Hazards Identification

Emergency Overview

Flammable (USA) Highly Flammable (EU). Harmful.
 Reacts violently with water, liberating extremely flammable gases. May form explosive peroxides. Harmful if swallowed. Irritating to eyes, respiratory system and skin. Limited evidence of a carcinogenic effect.
 Possible Carcinogen (US). Target organ(s): Liver. Kidneys. Central nervous system.

HMIS Rating
 Health: 2* Flammability: 3 Reactivity: 3 Special Hazard(s): Water reactive

NFPA Rating
 Health: 2 Flammability: 3 Reactivity: 3 Special Hazard(s): Water reactive

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

Oral Exposure

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

Inhalation Exposure

If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

Dermal Exposure

In case of contact, immediately wash skin with soap and copious amounts of water.

Eye Exposure

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

Flammable Hazards Yes **Peroxide Former:** Yes

Explosion Hazards

Vapor may travel considerable distance to source of ignition and flash back.
 Container explosion may occur under fire conditions.
 Material readily reacts with water generating flammable and/or explosive hydrogen gas

Flash Point 1 °F -17.2 °C

Autoignition Temp: N/A **Flammability:** Yes

Extinguishing Media

Suitable
Carbon dioxide, dry chemical powder, or appropriate foam.
Unsuitable
Do not use water.

Firefighting

Protective Equipment

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s)

Flammable liquid. Vapor may travel considerable distance to source of ignition and flash back. Emits toxic fumes under fire conditions. Water reactive material.

Section 6 - Accidental Release Measures

Procedure to be Followed in Case of Leak or Spill

Evacuate area. Shut off all sources of ignition. Use nonsparking tools.

Procedure(s) of Personal Precaution(s)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

Methods for Cleaning Up

Cover with dry-lime, sand, or soda ash. Place in covered containers using nonsparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling

User Exposure

Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

Storage

Suitable
Keep tightly closed. Keep away from heat, sparks, and open flame.

Incompatible Materials

Do not allow contact with water

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Special Requirements

Handle and store under inert gas. May develop pressure. Open carefully.

Section 8 - Exposure Controls / PPE**Engineering Controls**

Safety shower and eye bath. Mechanical exhaust required.

Personal Protective Equipment**Respiratory**

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows airpurifying respirators are appropriate, use a fullface respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Hand

Compatible chemical-resistant gloves.

Eye

Chemical safety goggles.

General Hygiene Measures

Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

| Appearance | Color |
|--------------------------|-----------|
| Physical State Liquid | Colorless |

Molecular Weight 122.02 AMU

| | |
|-----------------------|-------------------------|
| pH | N/A |
| BP/BP Range | N/A |
| MP/MP Range | N/A |
| Freezing Point | N/A |
| Vapor Pressure | N/A |
| Vapor Density | N/A |
| Saturated Vapor Conc. | N/A |
| SG/Density | 0.894 g/cm ³ |
| Bulk Density | N/A |
| Odor Threshold | N/A |
| Volatile% | N/A |
| VOC Content | N/A |
| Water Content | N/A |
| Solvent Content | N/A |
| Evaporation Rate | N/A |
| Viscosity | N/A |
| Partition Coefficient | N/A |
| Decomposition Temp. | N/A |
| Flash Point °F | 1 °F |
| Flash Point °C | -17.2 °C |

Method: closed cup
Method: closed cup

Explosion Limits N/A

Flammability N/A
Autoignition Temp N/A

Solubility N/A

N/A = not available

Section 10 - Stability and Reactivity**Stability****Stable**

Stable.

Conditions to Avoid

Heat.

Materials to Avoid

Reacts violently with: Water, Acids, Alcohols, Oxidizing agents

Hazardous Decomposition Products**Hazardous Decomposition Products**

Carbon monoxide, Carbon dioxide, Boron oxides, Liberates flammable/explosive hydrogen gas

Hazardous Polymerization**Hazardous Polymerization**

Will not occur.

Section 11 - Toxicological Information**Route of Exposure****Skin Contact**

Causes skin irritation.

Skin Absorption

May be harmful if absorbed through the skin.

Eye Contact

Causes eye irritation.

Inhalation

May be harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract.

Ingestion

Harmful if swallowed.

Target Organ(s) or System(s)

Central nervous system, Liver, Kidneys.

Signs and Symptoms of Exposure

Can cause CNS depression. Exposure can cause: Narcotic effect, Coughing, chest pains, difficulty in breathing, Nausea, dizziness, and headache. Unconsciousness. Prolonged or repeated exposure to skin causes defatting and dermatitis.

RTECS Number: N/A

Chronic Exposure - Carcinogen

Result: This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations**Appropriate Method of Disposal of Substance or Preparation**

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

DOT

Proper Shipping Name: Organometallic substance, liquid, waterreactive, flammable
UN#: 3399
Class: 4.3
Packing Group: Packing Group I
Hazard Label: Dangerous when wet
Hazard Label: Flammable liquid
PIH: Not PIH

IATA

Proper Shipping Name: Organometallic substance, liquid, waterreactive, flammable
IATA UN Number: 3399
Hazard Class: 4.3
Packing Group: I
Not Allowed - Aircraft: FORBIDDEN

Section 15 - Regulatory Information

EU Additional Classification

Symbol of Danger: F Xi

Indication of Danger

Highly Flammable. Irritant.

Risk Statements R: 11 14/15 19 36/37

Highly flammable. Reacts violently with water, liberating extremely flammable gases. May form explosive peroxides. Irritating to eyes and respiratory system.

Safety Statements S: 16 26 33 43

Keep away from sources of ignition- no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Take precautionary measures against static discharges. In case of fire, use dry powder. Never use water.

US Classification and Label Text

Indication of Danger

Flammable (USA) Highly Flammable (EU). Harmful.

Risk Statements

Reacts violently with water, liberating extremely flammable gases. May form explosive peroxides. Harmful if swallowed. Irritating to eyes, respiratory system and skin. Limited evidence of a carcinogenic effect.

Safety Statements

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.

US Statements

Possible Carcinogen (US). Target organ(s): Liver, Kidneys, Central nervous system.

United States Regulatory Information

SARA Listed: No

Canada Regulatory Information

WHMIS Classification

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: No

NDSL: No

Section 16 - Other Information

Disclaimer

For R&D use only. Not for drug, household or other uses.

Warranty

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. SigmaAldrich Inc., shall not be held liable for

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