



SIGMA-ALDRICH

Material Safety Data Sheet

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Section 1 - Product and Company Information

Product Name Benzotriazole, ReagentPlus®, 99%
Product Number B11400
Brand Aldrich Chemical

Company Sigma-Aldrich
Address 3050 Spruce Street
City, State, Zip, Country SAINT LOUIS, MO 63103 US
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
1H-BENZOTRIAZOLE	95-14-7	No	202-394-1	

Formula C₆H₅N₃
Synonyms 1,2-Aminozophenylene, Azimidobenzene, Aziminobenzene, Benzene azimide, Benzisotriazole, 1,2,3-Benzotriazole, Benztriazole, Cobratex #99, 2,3-Diazaindole, NCI-C03521, NSC-3058, 1,2,3-Triazaindene, U-6233

Section 3 - Hazards Identification

Emergency Overview

Toxic (USA) Harmful (EU).
Harmful by inhalation and if swallowed. Irritating to eyes. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

HMIS Rating
Health: 2 Flammability: 0 Reactivity: 1

NFPA Rating
Health: 2 Flammability: 0 Reactivity: 1

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 not breathing give artificial respiration. If breathing is difficult, give oxygen.

Dermal Exposure

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

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

Explosion Hazards

Container explosion may occur under fire conditions.

Flash Point: 338 °F 170 °C

Autoignition Temp: N/A

Extinguishing Media

Suitable

Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

Firefighting

Protective Equipment

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

Specific Hazard(s)

Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

Procedure to be Followed in Case of Leak or Spill

Evacuate area.

Procedure(s) of Personal Precaution(s)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

Methods for Cleaning Up

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling

User Exposure

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

Storage

Suitable

Keep tightly closed.

Special Requirements

Light sensitive.

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 air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator.

Hand

Compatible chemical-resistant gloves.

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Eye

Chemical safety goggles.

General Hygiene Measures

Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

Appearance	Color
Physical State	
Solid	Faintly beige

Molecular Weight: 119.13 AMU

pH	N/A
BP/BP Range	N/A
MP/MP Range	95 °C
Freezing Point	N/A
Vapor Pressure	0.04 mmHg
Vapor Density	4.1 g/l
Saturated Vapor Conc.	N/A
SG/Density	N/A
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	Log Kow: 1.44
Decomposition Temp.	N/A
Flash Point °F	338 °F
Flash Point °C	170 °C

20 °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

Exposure to light may affect product quality.

Materials to Avoid

Strong oxidizing agents, Heavy metals.

Hazardous Decomposition Products**Hazardous Decomposition Products**

Carbon monoxide, Carbon dioxide, Nitrogen oxides.

Hazardous Polymerization**Hazardous Polymerization**

Will not occur.

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

May cause skin irritation.

Skin Absorption

May be harmful if absorbed through the skin.

Eye Contact

Causes eye irritation.

Inhalation

Harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.

Ingestion

Harmful if swallowed.

Sensitization**Sensitization**

Will not occur

Signs and Symptoms of Exposure

The chemical, physical, and toxicological properties of this product have not been thoroughly investigated.

RTECS Number: DM1225000

Toxicity Data

Inhalation - Rat: 1,400 mg/kg(LC50)

Oral - Rat: 560 mg/kg (LD50)

Inhalation - Rat: 1,910 mg/m3 (LC50)

Remarks: Lungs, Thorax, or Respiration:Structural or functional change in trachea or bronchi.

Lungs, Thorax, or Respiration:Dyspnea.

Lungs, Thorax, or Respiration:Other changes.

Skin - Rat: > 1000 mg/kg (LD50)

Oral - Mouse: 615 mg/kg (LD50)

Intraperitoneal - Mouse: 400 MG/KG (LD50)

Intravenous - Mouse: 238 MG/KG (LD50)

Oral - Guinea pig: 500 mg/kg (LD50)

Remarks: Autonomic Nervous System:Other (direct) parasymphomimetic.

Behavioral:Somnolence (general depressed activity).

Lungs, Thorax, or Respiration:Cyanosis.

Irritation Data

Skin - Rabbit:

Remarks: No irritation effect

Chronic Exposure - Carcinogen

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Rat - Oral: 220 GM/KG 78W I

Result: Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Brain and Coverings:Tumors.

Mouse - Oral: 770 GM/KG 78W I

Result: Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Lungs, Thorax, or Respiration:Tumors. Lungs, Thorax, or Respiration:Bronchiogenic carcinoma.

NTP Carcinogen List

<u>Rating</u>	<u>Species</u>
Inadequate studies	Mouse/rat

Chronic Exposure - Mutagen

<u>Species</u>	<u>Dose</u>
Rat	94 UG/PLATE

<u>Route</u>
Feed

<u>Cell Type</u>
Embryo

<u>Mutation test</u>
Morphological transformation.

Section 12 - Ecological Information**Acute Ecotoxicity Tests****Test Type**

EC50 Daphnia

Species

Daphnia magna

Time:	Value:
48.0 h	91 mg/l

Test Type

LC50 Fish

Species

Lepomis macrochirus (Bluegill)

Time:	Value:
96.0 h	25 mg/l

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

Contact a licensed professional waste disposal service to dispose of this material.

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information**DOT****Proper Shipping Name:** None**Non-Hazardous for Transport:** This substance is considered to be non-hazardous for transport.**IATA****Non-Hazardous for Air Transport:** Non-hazardous for air transport.**Section 15 - Regulatory Information****EU Additional Classification****Symbol of Danger:** Xn**Indication of Danger**

Harmful.

Risk Statements**R:** 20/22 36 52/53

Harmful by inhalation and if swallowed. Irritating to eyes. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Statements**S:** 26 36/37 61

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing and gloves. Avoid release to the environment. Refer to special instructions/safety data sheets.

US Classification and Label Text**Indication of Danger**

Toxic (USA) Harmful (EU).

Risk Statements

Harmful by inhalation and if swallowed. Irritating to eyes. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Statements

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing and gloves. Avoid release to the environment. Refer to special instructions/safety data sheets.

United States Regulatory Information**SARA Listed:** No**TSCA Inventory Item:** Yes**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: Yes**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. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.