

Chemical Safety Data Sheet MSDS / SDS

Benzotriazole SDS

Revision Date:2024-04-25 Revision Number:1

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SECTION 1: Identification of the substance/mixture and of the company/undertaking**Product identifier**

Product name: Benzotriazole

CAS: 95-14-7

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

Company Identification

Company: Chemicalbook.in

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SECTION 2: Hazards identification**Classification of the substance or mixture**

Acute toxicity - Category 4, Oral

Eye irritation, Category 2

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2

GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Warning

Hazard statement(s)

H302 Harmful if swallowed

H319 Causes serious eye irritation

H411 Toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P273 Avoid release to the environment.

Response

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

P391 Collect spillage.

Storage

none

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Benzotriazole
Common names and synonyms:	Benzotriazole
CAS number:	95-14-7
EC number:	202-394-1
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Give one or two glasses of water to drink. Refer for medical attention .

Most important symptoms/effects, acute and delayed

ACUTE/CHRONIC HAZARDS: When heated to decomposition this compound emits toxic fumes. This compound can react violently during vacuum distillation. (NTP, 1992)

Indication of immediate medical attention and special treatment needed, if necessary

no data available

SECTION 5: Firefighting measures

Suitable extinguishing media

Fires involving this compound can be controlled with a dry chemical, carbon dioxide or Halon extinguisher. (NTP, 1992)

Specific hazards arising from the chemical

Flash point data are not available for this compound. It is probably combustible. (NTP, 1992)

Special protective actions for fire-fighters

Use water spray.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment. Personal protection: particulate filter respirator adapted to the airborne concentration of the substance.

Environmental precautions

Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment. Personal protection: particulate filter respirator adapted to the airborne concentration of the substance.

Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames. Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Well closed.

SECTION 8: Exposure controls/personal protection**Control parameters****Occupational Exposure limit values**

MAK: not established but data are available; skin absorption (H); carcinogen category: 3B

Biological limit values

no data available

Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures, such as personal protective equipment (PPE)**Eye/face protection**

Wear safety spectacles.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use local exhaust.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Solid. Powder.
Colour:	Pale-yellow coloured.
Odour:	no data available
Melting point/freezing point:	Ca. 100 °C.
Boiling point or initial boiling point and boiling range:	Ca. 204 °C. Atm. press.:101.3 kPa.
Flammability:	Combustible.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	170°C
Auto-ignition temperature:	210°C
Decomposition temperature:	260°C
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	1 to 5 mg/mL at 74.7° F (NTP, 1992)
Partition coefficient n-octanol/water:	Pow = 22.8. Temperature:22.7 °C. Remarks:Octanol / water = 5.0 ml / 245 ml (2 measurements).;Pow = 22.4. Temperature:22.7 °C. Remarks:Octanol / water = 10.0 ml / 240 ml (2 measurements).;Pow = 5.7. Temperature:21 °C. Remarks:Octanol / water = 20.0 ml / 230 ml (2 measurements).
Vapour pressure:	Ca. 0.007 kPa. Temperature:25 °C.

Density and/or relative density:	1.36 g/cm ³ . Temperature: 20 °C.
Relative vapour density:	4.1 (vs air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on heating. This produces toxic fumes including aniline and nitrobenzene. The solution in water is a weak acid. May explode on vacuum distillation.

Chemical stability

Very stable toward acids & alkalies, & toward oxidation & reduction; it forms stable metallic salts

Possibility of hazardous reactions

Dust explosion possible if in powder or granular form, mixed with air. The triazoles are a group of highly explosive materials that are sensitive to heat, friction, and impact. Sensitivity varies with the type substitution to the triazole ring. Metal chelated and halogen substitution of the triazole ring make for a particularly heat sensitive material. Azido and nitro derivatives have been employed as high explosives. No matter the derivative these materials should be treated as explosives.

Conditions to avoid

no data available

Incompatible materials

no data available

Hazardous decomposition products

no data available

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 cut-off - rat (male/female) - ca. 500 mg/kg bw.

Inhalation: LC50 - rat (male) - 1.91 mg/L air (analytical).

Dermal: LD50 - rabbit (male/female) - > 2 000 mg/kg bw.

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes.

STOT-repeated exposure

Repeated or prolonged contact may cause skin sensitization.

Aspiration hazard

Evaporation at 20°C is negligible; a nuisance-causing concentration of airborne particles can, however, be reached quickly.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50 - Danio rerio (previous name: Brachydanio rerio) - 180 mg/L - 96 h.

Toxicity to daphnia and other aquatic invertebrates: EC50 - other aquatic crustacea: Daphnia galeata - 15.8 mg/L - 48 h.

Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) - 75 mg/L - 72 h.

Toxicity to microorganisms: EC50 - activated sludge of a predominantly domestic sewage - 940 mg/L - 3 h. Remarks: Respiration rate.

Persistence and degradability

1,2,3-benzotriazole was biol stable as source of org c for activated sludge inoculum.

Bioaccumulative potential

An estimated BCF of 2.5 was calculated for 1,2,3-benzotriazole(SRC), using a log Kow of 1.44(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low.

Mobility in soil

The Koc of 1,2,3-benzotriazole is estimated as 145(SRC), using a log Kow of 1.44(1) and a regression-derived equation(2). According to a classification scheme(3), these estimated Koc values suggests that 1,2,3- benzotriazole is expected to have high mobility in soil. However, mobility of 1,2,3-benzotriazole will be affected by pH(2): the pKa of benzotriazole is 8.37(4), indicating that this compound will exist in the cation form in the environment and cations generally adsorb to organic carbon and clay more strongly than their neutral counterparts.

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

Environmental hazards

ADR/RID: Yes

IMDG: Yes

IATA: Yes

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Listed.

China Catalog of Hazardous chemicals 2015

Not Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:
http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website:
<http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

Health effects of exposure to the substance have not been investigated adequately.

Disclaimer: 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. We as supplier shall not be held liable for any