

According to the UN GHS revision 8

Creation Date: May 06, 2026

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1. IDENTIFICATION

1.1 GHS Product identifier

Product name: Benthiazole

Catalog Number: T3573

CAS Number: 21564-17-0

1.2 Other means of identification

Other names: -

1.3 Recommended use of the chemical and restrictions on use

Identified uses:

1.4 Supplier's details

Company: Targetmol Chemicals Inc.

Address: 34 Washington Street, Wellesley Hills, Massachusetts 02481 USA

Tel/Fax: (781) 999-4286

1.5 Emergency phone number

Emergency phone number: 781-999-4286

Service hours: Monday to Friday, 9am-5pm (Standard timezone: UTC/GMT -5 hours).

2. HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture

Acute toxicity - Category 4, Oral

Skin irritation, Category 2

Eye irritation, Category 2

Skin sensitization, Category 1

Acute toxicity - Category 2, Inhalation

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

2.2 GHS label elements, including precautionary statements

Pictogram(s):



Signal word:

Danger

Hazard statement(s):

H302 Harmful if swallowed

H315 Causes skin irritation

H319 Causes serious eye irritation

H317 May cause an allergic skin reaction

H330 Fatal if inhaled

H410 Very 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/...

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
 P272 Contaminated work clothing should not be allowed out of the workplace.
 P260 Do not breathe dust/fume/gas/mist/vapours/spray.
 P271 Use only outdoors or in a well-ventilated area.
 P284 [In case of inadequate ventilation] wear respiratory protection.
 P273 Avoid release to the environment.

P301+P317 IF SWALLOWED: Get medical help.
 P330 Rinse mouth.
 P302+P352 IF ON SKIN: Wash with plenty of water/...
 P321 Specific treatment (see ... on this label).
 P332+P317 If skin irritation occurs: Get medical help.
 P362+P364 Take off contaminated clothing and wash it before reuse.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P333+P317 If skin irritation or rash occurs: Get medical help.
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P316 Get emergency medical help immediately.
 P320 Specific treatment is urgent (see ... on this label).
 P391 Collect spillage.

Response:

Storage: P403+P233 Store in a well-ventilated place. Keep container tightly closed.

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.

2.3 Other hazards which do not result in classification

no data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number
Benthiazole	-	21564-17-0	244-445-0

4. FIRST-AID MEASURES

4.1 Description of necessary first-aid measures

General advice

no data available

If inhaled

Fresh air, rest.

Following skin contact

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.

4.2 Most important symptoms/effects, acute and delayed

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Esters and related compounds

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

no data available

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Use water spray, powder, foam, carbon dioxide.

5.2 Specific hazards arising from the chemical

Combustible. Liquid formulations containing organic solvents may be flammable. Gives off irritating or toxic fumes (or gases) in a fire. Risk of fire and explosion if formulations contain flammable/explosive solvents.

5.3 Special protective actions for fire-fighters

Use water spray, powder, foam, carbon dioxide.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment.

6.2 Environmental precautions

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment.

6.3 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.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

NO open flames. 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.

7.2 Conditions for safe storage, including any incompatibilities

Separated from food and feedstuffs. Store in an area without drain or sewer access. Provision to contain effluent from fire extinguishing.

Store at low temperature

Pure form: -20°C for 3 years | In solvent: -80°C for 1 year

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 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.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Solid
Color	no data available
Odour	Pungent
Melting point/freezing point	<-10 deg C
Boiling point or initial boiling point and boiling range	405.6°C at 760 mmHg
Flammability	Combustible. Liquid formulations containing organic solvents may be flammable. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	no data available
Flash point	199.1°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	DMSO: 10 mM, Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
N-octanol-water partition coefficient	log Kow = 3.23 at 20 deg C
Vapour pressure	8.65E-07mmHg at 25°C
Density and/or relative density	1.47 g/cm ³
Relative vapour density	no data available
Particle characteristics	no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

Decomposes on heating. This produces toxic fumes including hydrogen cyanide, nitrogen oxides and sulfur oxides.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

Decomposes on heating. This produces toxic fumes including hydrogen cyanide, nitrogen oxides and sulfur oxides.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

When heated to decomposition it emits toxic fumes of ... /sulfur oxides & nitrogen oxides/.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral: LD50 Rat oral 1,590 mg/kg

Inhalation: no data available

Dermal: no data available

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 corrosive to the eyes. The substance is irritating to the skin.

STOT-repeated exposure

Repeated or prolonged contact may cause skin sensitization.

Aspiration hazard

No indication can be given about the rate at which a harmful concentration of this substance in the air is reached on evaporation at 20°C.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish: LC50; Species: /Lepomis macrochirus/ (Bluegill sunfish); Concentration: 0.047 ppm for 96 hr /60% formulation (Busan 72)/ /Conditions of bioassay not specified

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water Flea) age <24 hr; Conditions: freshwater, flow through; Concentration: 23 ug/L for 48 hr (95% confidence interval: 20-26 ug/L); Effect: intoxication, immobilization /80% purity

Toxicity to algae: EC50; Species: Pseudokirchneriella subcapitata (Green Algae); Conditions: freshwater, static, 25 deg C; Concentration: 39 ug/L for 30 hr; Effect: population abundance /100% purity

Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: 2-(Thiocyanomethylthio)benzothiazole, present at 100 mg/L, reached 0% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test classifying the compound as not readily biodegradable(1). By contrast, thiocyanic acid, (2-benzothiazolythio) methyl ester, at an initial concentration of 42 umol/L, was 95% degraded in 9 to 12 days using a mixed culture pilot plant designed for treatment of tannery wastes; 2-(methylthio)benzothiazole was the main product(2). Using OECD Method 301B (CO2 Evolution Modified Sturm Test), 96% of initial 2-(thiocyanomethylthio)benzothiazole degraded by day 28(3); however, it took >10 days for the degradation to increase from 10 to 60%, thereby classifying the compound as not readily biodegradable under the conditions of the test(3). Soil samples were incubated in the dark with the test compound at 25 deg C for 58 days; a soil aerobic metabolism half-life of 1.4 days was reported(3).

12.3 Bioaccumulative potential

A DRUG SCREENING EXPERT

Using carp (*Cyprinus carpio*) which were exposed over an 8-week period, a BCF range was of <14-20 and <153 to 268 was measured for 2-(thiocyanomethylthio)benzothiazole at concentrations of 2 and 0.2 ug/L, respectively(1). Using bluegill sunfish (*Lepomis macrochirus*) and a 28-day exposure period, BCF values of 44 and 184 were determined in the fillet and whole fish respectively(2). According to a classification scheme(3), BCF values of <30 are low, 30-100 are moderate and from 100 to 1,000 are high(SRC).

12.4 Mobility in soil

The adsorption of 2-(thiocyanomethylthio)benzothiazole was measured in five different soil types (sand, sandy loam, silt loam, clay and clay loam) with resulting Koc values ranging from 282 to 7896(1). Two soil adsorption studies conducted using OECD guidelines in four soil types determined Koc values of 633, 1,730, 2,060 and 2,270(2). According to a classification scheme(3), these Koc values suggest that 2-(thiocyanomethylthio)benzothiazole is expected to have moderate to no mobility in soil.

12.5 Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

13.1 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.

14. TRANSPORT INFORMATION

14.1 UN Number

no data available

14.2 UN Proper Shipping Name

no data available

14.3 Transport hazard class(es)

no data available

14.4 Packing group, if applicable

no data available

14.5 Environmental hazards

no data available

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

15. REGULATORY INFORMATION

15.1 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	Not Listed.
China Catalog of Hazardous chemicals 2015	Not Listed.
New Zealand Inventory of Chemicals (NZIoC)	Listed.

Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Listed.
Vietnam National Chemical Inventory	Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)	Listed.
Korea Existing Chemicals List (KECL)	Listed.

16. OTHER INFORMATION

Information on revision

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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

If the substance is formulated with solvent(s) also consult the card(s) (ICSC) of the solvent(s). Carrier solvent may enhance the skin absorption. Carrier solvents used in commercial formulations may change physical and toxicological properties.

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 damage resulting from handling or from contact with the above product.

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