

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 6.5

Revision Date 08.03.2024

Print Date 02.05.2025

GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifiers

Product name : Benzothiazole

Product Number : 61427

Brand : Sigma-Aldrich

REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

CAS-No. : 95-16-9

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

Identified uses : Laboratory chemicals, Manufacture of substances

### 1.3

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### 1.4 Emergency telephone

Emergency Phone # : 000 800 1007 141 (CHEMTREC)

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

|                              |                                      |
|------------------------------|--------------------------------------|
| Acute toxicity, (Category 3) | H301: Toxic if swallowed.            |
| Acute toxicity, (Category 4) | H332: Harmful if inhaled.            |
| Acute toxicity, (Category 3) | H311: Toxic in contact with skin.    |
| Eye irritation, (Category 2) | H319: Causes serious eye irritation. |

## 2.2 Label elements

### Labelling according Regulation (EC) No 1272/2008

#### Pictogram

|                                |                                                                                                                                  |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Signal Word                    | Danger                                                                                                                           |
| Hazard Statements              |                                                                                                                                  |
| H301 + H311                    | Toxic if swallowed or in contact with skin.                                                                                      |
| H319                           | Causes serious eye irritation.                                                                                                   |
| H332                           | Harmful if inhaled.                                                                                                              |
| Precautionary Statements       |                                                                                                                                  |
| P261                           | Avoid breathing mist or vapors.                                                                                                  |
| P280                           | Wear protective gloves/ protective clothing/ eye protection/ face protection.                                                    |
| P301 + P310                    | IF SWALLOWED: Immediately call a POISON CENTER/ doctor.                                                                          |
| P302 + P352 + P312             | IF ON SKIN: Wash with plenty of water.Call a POISON CENTER/ doctor if you feel unwell.                                           |
| P304 + P340 + P312             | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.      |
| P305 + P351 + P338             | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| Supplemental Hazard Statements | none                                                                                                                             |

### Reduced Labeling (<= 125 ml)

#### Pictogram

|                                |                                                                                        |
|--------------------------------|----------------------------------------------------------------------------------------|
| Signal Word                    | Danger                                                                                 |
| Hazard Statements              |                                                                                        |
| H301 + H311                    | Toxic if swallowed or in contact with skin.                                            |
| Precautionary Statements       |                                                                                        |
| P301 + P310                    | IF SWALLOWED: Immediately call a POISON CENTER/ doctor.                                |
| P302 + P352 + P312             | IF ON SKIN: Wash with plenty of water.Call a POISON CENTER/ doctor if you feel unwell. |
| Supplemental Hazard Statements | none                                                                                   |

## 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

#### Ecological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Formula : C<sub>7</sub>H<sub>5</sub>NS  
Molecular weight : 135,18 g/mol  
CAS-No. : 95-16-9  
EC-No. : 202-396-2

| Component            |           | Classification                                                                 | Concentration |
|----------------------|-----------|--------------------------------------------------------------------------------|---------------|
| <b>Benzothiazole</b> |           |                                                                                |               |
| CAS-No.              | 95-16-9   | Acute Tox. 3; Acute Tox. 4; Acute Tox. 3; Eye Irrit. 2; H301, H332, H311, H319 | <= 100 %      |
| EC-No.               | 202-396-2 |                                                                                |               |

For the full text of the H-Statements mentioned in this Section, see Section 16.

## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

#### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

#### In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

#### If swallowed

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

**4.3 Indication of any immediate medical attention and special treatment needed**  
No data available

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**SECTION 5: Firefighting measures**

**5.1 Extinguishing media**

**Suitable extinguishing media**

Water Foam Carbon dioxide (CO<sub>2</sub>) Dry powder

**Unsuitable extinguishing media**

For this substance/mixture no limitations of extinguishing agents are given.

**5.2 Special hazards arising from the substance or mixture**

Carbon oxides

Nitrogen oxides (NO<sub>x</sub>)

Sulfur oxides

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

**5.3 Advice for firefighters**

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

**5.4 Further information**

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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**SECTION 6: Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

**6.2 Environmental precautions**

Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.

**6.4 Reference to other sections**

For disposal see section 13.

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**SECTION 7: Handling and storage**

## 7.1 Precautions for safe handling

### Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

### Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

## 7.2 Conditions for safe storage, including any incompatibilities

### Storage conditions

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

### Storage class

Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

## 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

### 8.2 Exposure controls

#### Personal protective equipment

##### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

##### Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: butyl-rubber

Minimum layer thickness: 0,7 mm

Break through time: 480 min

Material tested: Butoject® (KCL 898)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact  
Material: Nitrile rubber  
Minimum layer thickness: 0,4 mm  
Break through time: 10 min  
Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

**Body Protection**  
protective clothing

**Respiratory protection**  
required when vapours/aerosols are generated.  
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.  
Recommended Filter type: Filter type ABEK

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.  
These measures have to be properly documented.

**Control of environmental exposure**  
Do not let product enter drains.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- |                                                 |                                                                                                       |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| a) Physical state                               | liquid                                                                                                |
| b) Color                                        | No data available                                                                                     |
| c) Odor                                         | characteristic                                                                                        |
| d) Melting point/freezing point                 | Melting point: 2 °C                                                                                   |
| e) Initial boiling point and boiling range      | 231 °C at 1.013 hPa                                                                                   |
| f) Flammability (solid, gas)                    | No data available                                                                                     |
| g) Upper/lower flammability or explosive limits | Upper explosion limit: 8,2 %(V)<br>Lower explosion limit: 0,9 %(V)                                    |
| h) Flash point                                  | ca.107 °C - Pensky-Martens closed cup - DIN 51758                                                     |
| i) Autoignition temperature                     | 565 °C<br>- DIN 51794                                                                                 |
| j) Decomposition temperature                    | No data available                                                                                     |
| k) pH                                           | No data available                                                                                     |
| l) Viscosity                                    | Viscosity, kinematic: No data available<br>Viscosity, dynamic: 6,27 mPa.s at 20 °C 3,6 mPa.s at 40 °C |

- |                                              |                                                                                                  |
|----------------------------------------------|--------------------------------------------------------------------------------------------------|
| m) Water solubility                          | 4,3 g/l at 25 °C                                                                                 |
| n) Partition coefficient:<br>n-octanol/water | log Pow: 2,01 - (calculated) - Bioaccumulation is not expected.,<br>(Lit.)                       |
| o) Vapor pressure                            | ca.0,13 hPa at 20 °C - OECD Test Guideline 104<br>ca.0,95 hPa at 50 °C - OECD Test Guideline 104 |
| p) Density                                   | 1,241 - 1,247 g/cm <sup>3</sup> at 20,0 °C                                                       |
| Relative density                             | No data available                                                                                |
| q) Relative vapor<br>density                 | No data available                                                                                |
| r) Particle<br>characteristics               | No data available                                                                                |
|                                              |                                                                                                  |
| s) Explosive properties                      | No data available                                                                                |
| t) Oxidizing properties                      | none                                                                                             |

## 9.2 Other safety information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Forms explosive mixtures with air on intense heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Violent reactions possible with:

Strong oxidizing agents

Strong acids

Bases

### 10.4 Conditions to avoid

Strong heating.

### 10.5 Incompatible materials

No data available

### 10.6 Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - female - 178 mg/kg

(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - 5 mg/l - dust/mist

(OECD Test Guideline 403)

Symptoms: Possible damages:, mucosal irritations

LD50 Dermal - Rat - female - 933 mg/kg

(OECD Test Guideline 402)

#### Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Eye irritation

(OECD Test Guideline 405)

#### Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

Result: negative

(OECD Test Guideline 429)

#### Germ cell mutagenicity

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

#### Carcinogenicity

No data available

#### Reproductive toxicity

No data available

#### Specific target organ toxicity - single exposure

No data available

#### Specific target organ toxicity - repeated exposure

No data available

#### Aspiration hazard

No data available

### 11.2 Additional Information

#### Endocrine disrupting properties

##### Product:

Assessment

The substance/mixture does not contain components considered to have endocrine

disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

RTECS: DL0875000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

We have no description of any toxic symptoms.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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## SECTION 12: Ecological information

### 12.1 Toxicity

|                                                                       |                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Toxicity to fish                                                      | LC50 - <i>Oryzias latipes</i> (Orange-red killifish) - 39 mg/l - 96 h<br>(OECD Test Guideline 203)<br><br>NOEC - <i>Oryzias latipes</i> (Orange-red killifish) - 7,2 mg/l - 14 d<br>(OECD Test Guideline 204)                          |
| Toxicity to daphnia and other aquatic invertebrates                   | static test EC50 - <i>Daphnia magna</i> (Water flea) - 19 mg/l - 48 h<br>(OECD Test Guideline 202)                                                                                                                                     |
| Toxicity to algae                                                     | static test ErC50 - <i>Desmodesmus subspicatus</i> (green algae) - 48,7 mg/l - 72 h<br>(OECD Test Guideline 201)<br><br>static test NOEC - <i>Desmodesmus subspicatus</i> (green algae) - 5,1 mg/l - 72 h<br>(OECD Test Guideline 201) |
| Toxicity to bacteria                                                  | Respiration inhibition EC50 - activated sludge - 650 mg/l - 3 h<br>(OECD Test Guideline 209)                                                                                                                                           |
| Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity) | Reproduction Test NOEC - <i>Daphnia magna</i> (Water flea) - 1,5 mg/l - 21 d<br>(OECD Test Guideline 211)                                                                                                                              |

### 12.2 Persistence and degradability

|                  |                                                                                                       |
|------------------|-------------------------------------------------------------------------------------------------------|
| Biodegradability | aerobic - Exposure time 28 d<br>Result: 74,3 % - Readily biodegradable.<br>(OECD Test Guideline 301F) |
|------------------|-------------------------------------------------------------------------------------------------------|

### 12.3 Bioaccumulative potential

|                 |                                                                   |
|-----------------|-------------------------------------------------------------------|
| Bioaccumulation | <i>Cyprinus carpio</i> (Carp) - 42 d<br>- 0,2 mg/l(Benzothiazole) |
|-----------------|-------------------------------------------------------------------|

Bioconcentration factor (BCF): 2,1 - 5,1  
(OECD Test Guideline 305C)

Cyprinus carpio (Carp) - 42 d  
- 0,02 mg/l(Benzothiazole)

Bioconcentration factor (BCF): 4,1 - 7,5  
(OECD Test Guideline 305C)

#### 12.4 Mobility in soil

No data available

#### 12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

#### 12.6 Endocrine disrupting properties

**Product:**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

#### 12.7 Other adverse effects

No data available

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### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

No data available

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### SECTION 14: Transport information

#### 14.1 UN number

ADR/RID: 2810

IMDG: 2810

IATA: 2810

#### 14.2 UN proper shipping name

ADR/RID: TOXIC LIQUID, ORGANIC, N.O.S. (Benzothiazole)

IMDG: TOXIC LIQUID, ORGANIC, N.O.S. (Benzothiazole)

IATA: Toxic liquid, organic, n.o.s. (Benzothiazole)

#### 14.3 Transport hazard class(es)

ADR/RID: 6.1

IMDG: 6.1

IATA: 6.1

**14.4 Packaging group**

ADR/RID: III

IMDG: III

IATA: III

**14.5 Environmental hazards**

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

**14.6 Special precautions for user**

Tunnel restriction code : (E)

Further information : No data available

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**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

**Other regulations**

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

**15.2 Chemical Safety Assessment**

For this product a chemical safety assessment was not carried out

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**SECTION 16: Other information****Full text of H-Statements**

|      |                                |
|------|--------------------------------|
| H301 | Toxic if swallowed.            |
| H311 | Toxic in contact with skin.    |
| H319 | Causes serious eye irritation. |
| H332 | Harmful if inhaled.            |

## Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

## Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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