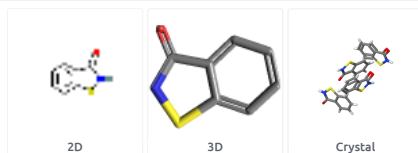


1,2-Benzisothiazol-3(2H)-one

PubChem CID: 17520

Structure:

[Find Similar Structures](#)

Chemical Safety:

[Laboratory Chemical Safety Summary \(LCSS\) Datasheet](#)Molecular Formula: C_7H_5NOS

Synonyms:

2634-33-5
1,2-Benzisothiazol-3(2H)-one
1,2-Benzisothiazolin-3-one
1,2-benzothiazol-3-one
benzisothiazolone

Molecular Weight: 151.19 g/mol

Dates:

Modify: Create:
2020-02-26 2005-03-27

Benzo[d]isothiazol-3-one is an organic heterobicyclic compound based on a fused [1,2-thiazole](#) and [benzene](#) bicyclic ring skeleton, with the S atom positioned adjacent to one of the positions of ring fusion. It has a role as a disinfectant, a platelet aggregation inhibitor, an environmental contaminant, a xenobiotic, a drug allergen and a sensitiser. It is an organonitrogen heterocyclic compound and an organic heterobicyclic compound.

[▶ ChEBI](#)

Industrial biocide. 1, 2-Benzisothiazol-3(2H)-one is present in can-end cement.

[▶ Human Metabolome Database \(HMDB\)](#)

11 Safety and Hazards





11.1 Hazards Identification



11.1.1 GHS Classification



Showing 1 of 5 View More


Pictogram(s)	   Corrosive Irritant Environmental Hazard
Signal	Danger
GHS Hazard Statements	H302: Harmful if swallowed [Warning Acute toxicity, oral] H315: Causes skin irritation [Warning Skin corrosion/irritation] H317: May cause an allergic skin reaction [Warning Sensitization, Skin] H318: Causes serious eye damage [Danger Serious eye damage/eye irritation] H400: Very toxic to aquatic life [Warning Hazardous to the aquatic environment, acute hazard]
Precautionary Statement Codes	P261, P264, P270, P272, P273, P280, P301+P312, P302+P352, P305+P351+P338, P310, P321, P330, P332+P313, P333+P313, P362, P363, P391, and P501 (The corresponding statement to each P-code can be found at the GHS Classification page.)

▶ [EU REGULATION \(EC\) No 1272/2008](#)

11.1.2 EPA Safer Chemical



Chemical: 1,2-Benzisothiazol-3(2H)-one

 Yellow triangle - The chemical has met Safer Choice Criteria for its functional ingredient-class, but has some hazard profile issues. Specifically, a chemical with this code is not associated with a low level of hazard concern for all human health and environmental endpoints. (See [Safer Choice Criteria](#)). While it is a best-in-class chemical and among the safest available for a particular function, the function fulfilled by the chemical should be considered an area for safer chemistry innovation.

▶ [EPA Safer Choice](#)

11.1.3 Skin, Eye, and Respiratory Irritations



Severe eye irritant.

USEPA/Office of Prevention, Pesticides and Toxic Substances; Reregistration Eligibility Decision Document for 1,2-Benzisothiazolin-3-one (BIT) p.7, EPA 739-R-05-007 (September 2005). Available from, as of July 22, 2015: <http://www.epa.gov/pesticides/reregistration/status.htm>

▶ [HSDB](#)

11.2 Fire Fighting



11.2.1 Fire Fighting Procedures



Suitable extinguishing media: Use [water](#) spray, alcohol-resistant foam, dry chemical or [carbon dioxide](#).

Sigma-Aldrich; Safety Data Sheet for 1,2-Benzisothiazol-3(2H)-one. Product Number: 561487, Version 4.5 (Revision Date 03/25/2015). Available from, as of July 10, 2015: <http://www.sigmaldrich.com/safety-center.html>

▶ [HSDB](#)

Advice for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

Sigma-Aldrich; Safety Data Sheet for 1,2-Benzisothiazol-3(2H)-one. Product Number: 561487, Version 4.5 (Revision Date 03/25/2015). Available from, as of July 10, 2015: <http://www.sigmaldrich.com/safety-center.html>

▶ [HSDB](#)

11.3 Accidental Release Measures



11.3.1 Cleanup Methods



ACCIDENTAL RELEASE MEASURES: Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.; Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.; Methods and materials for containment and cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

Sigma-Aldrich; Safety Data Sheet for 1,2-Benzisothiazol-3(2H)-one. Product Number: 561487, Version 4.5 (Revision Date 03/25/2015). Available from, as of July 10, 2015: <http://www.sigmaldrich.com/safety-center.html>

▶ [HSDB](#)

11.3.2 Disposal Methods



SRP: Recycle any unused portion of the material for its approved use or return it to the manufacturer or supplier. Ultimate disposal of the chemical must consider: the material's impact on air quality; potential migration in air, soil or [water](#); effects on animal, aquatic and plant life; and conformance with environmental and public health regulations. If it is possible or reasonable use an alternative chemical product with less inherent propensity for occupational harm/injury/toxicity or environmental contamination.

▶ [HSDB](#)

Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Contaminated packaging: Dispose of as unused product.

Sigma-Aldrich; Safety Data Sheet for 1,2-Benzisothiazol-3(2H)-one. Product Number: 561487, Version 4.5 (Revision Date 03/25/2015). Available from, as of July 10, 2015: <http://www.sigmaldrich.com/safety-center.html>

12 Toxicity



12.1 Toxicological Information



12.1.1 NIOSH Toxicity Data



► [The National Institute for Occupational Safety and Health \(NIOSH\)](#)

12.1.2 Acute Effects



► [ChemIDplus](#)

12.1.3 Toxicity Summary



IDENTIFICATION AND USE: 1,2-Benzisothiazoline-3-one (BIT) is an off-white to yellowish solid. It is registered for pesticide use in the USA but approved pesticide uses may change periodically and so federal, state and local authorities must be consulted for currently approved uses. BIT is used as an antimicrobial agent in cosmetics; used as a **slimicide** in the manufacture of disposable powder-free **polyvinyl chloride** gloves; widely used in industry as a preservative in **water**-based solutions such as pastes, paints and cutting oils. It is also used in private area and public health area disinfectants and other biocidal products, in-can preservatives, film preservatives fibre, leather, rubber and polymerized materials preservatives, masonry preservatives, preservatives for liquid-cooling and processing systems, metalworking-fluid preservatives, embalming and taxidermist fluids. HUMAN EXPOSURE AND TOXICITY: Dermal exposure to BIT at sufficient dose and duration can produce skin sensitization and allergic contact dermatitis in susceptible humans. Occupational asthma and rhinitis caused by inhalation of BIT was reported in a 26-year-old man employed in a chemical factory producing detergents. ANIMAL STUDIES: Severe eye irritant. Subchronic oral toxicity studies showed systemic effects after repeated oral administration including decreased body weight, increased incidence of forestomach hyperplasia, and non-glandular stomach lesions in rats. In dogs, the effects occurred at lower doses than in rats, and included alterations in blood chemistry (decreased plasma albumin, total protein, and **alanine** aminotransferase) and increased absolute liver weight. Developmental toxicity studies were conducted in rats with maternal effects including decreased body weight gain, decreased food consumption, and clinical toxicity signs (audible breathing, haircoat staining of the anogenital region, dry brown material around the nasal area) as well as increased mortality. Developmental effects consisted of increases in skeletal abnormalities (extra sites of ossification of skull bones, unossified sternebra) but not external or visceral abnormalities.

► [HSDB](#)

12.1.4 Antidote and Emergency Treatment



/SRP:/ 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 if necessary. Immediately flush contaminated eyes with gently flowing **water**. Do not induce vomiting. If vomiting occurs, lean patient forward or place on the 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. /Poisons A and B/

Currance, P.L. Clements, B., Bronstein, A.C. (Eds.); Emergency Care For Hazardous Materials Exposure. 3rd revised edition, Elsevier Mosby, St. Louis, MO 2007, p. 160

► [HSDB](#)

/SRP:/ Basic treatment: Establish a patent airway (oropharyngeal or nasopharyngeal airway, if needed). Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if needed. Administer **oxygen** by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary ... Monitor for shock and treat if necessary ... Anticipate seizures and treat if necessary ... For eye contamination, flush eyes immediately with **water**. Irrigate each eye continuously with 0.9% saline (NS) during transport ... Do not use emetics. For ingestion, rinse mouth and administer 5 mL/kg up to 200 mL of **water** for dilution if the patient can swallow, has a strong gag reflex, and does not drool ... Cover skin burns with dry sterile dressings after decontamination ... /Poisons A and B/

Currance, P.L. Clements, B., Bronstein, A.C. (Eds.); Emergency Care For Hazardous Materials Exposure. 3rd revised edition, Elsevier Mosby, St. Louis, MO 2007, p. 160

► [HSDB](#)

/SRP:/ Advanced treatment: Consider orotracheal or nasotracheal intubation for airway control in the patient who is unconscious, has severe pulmonary edema, or is in severe respiratory distress. Positive-pressure ventilation techniques with a bag valve mask device may be beneficial. Consider drug therapy for pulmonary edema ... Consider administering a beta agonist