



Safety Data Sheet (SDS)

Revision 2/ Review Date: 3/15/2019

1. Chemical Product and Company Identification

Product Name: **TBBS- N-tert-butyl-2-benxothiazole sulfenamide**
Distributed By: HB Chemical
1665 Enterprise Parkway
Twinsburg Oh 44087
Phone - 330-920-8023
MSDS Prepared By (w Suppliers Input): HB Chemical
REACH registration Number: 01-2119492625-29-XXXX
CAS Number: 95-31-8
Product Use: Used as rubber antioxidant.
OSHA Status: Not Hazardous

For emergency health, safety, and environmental information, calls 330-920-8023

For emergency transportation information, in the United States: call CHEMTREC at 800-424-9300

2. Hazard(s) Identification

Classification

The substance is classified as following according to REGULATION (EC) No 1272/2008:

Regulation (EC) No 1272/2008

Hazard classes/Hazard categories Hazard codes

Skin Sens. 1 H317

Aquatic Acure 1 H400

Aquatic Chronic 1 H410

Hazard Pictograms:



Signal Word(S): Warning

Hazard Statement:

H317: May cause an allergic skin reaction.

H410: Very toxic to aquatic life with long lasting effects.

Precautionary statement:

P261: Avoid breathing dust/fume/gas/mist/vapours/spray.

P272: Contaminated work clothing should not be allowed out of the workplace.

P273: Avoid release to the environment.

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

P302 + P352: IF ON SKIN: Wash with plenty of water.
P333 + P313: If skin irritation or rash occurs: Get medical advice/ attention.
P391: Collect spillage.
P362 + P364: Take off contaminated clothing and wash it before reuse.
P501: Dispose of contents/container in accordance with local/ regional/national/international regulation

Other Hazards:

Not available.

3. Composition / Information on Ingredients

Substance/Mixture: Substance

Hazardous ingredients:

Chemical Name	Registration No.	CAS Number	EC No.	Concentration
N-tert-butyl-2-benzothiazole sulfenamide	01-2119492625-29-XXXX	95-31-8	202-409-1	≥99%

4. First Aid Measures

Inhalation:

Move exposed person to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Eyes:

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Skin:

Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention.

Ingestion:

Wash out mouth with water. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs.

Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Information to physician:

May cause an allergic skin reaction. If skin irritation or rash occurs, get medical advice/attention.

5. Fire-Fighting Measures

Suitable Extinguishing Media:

Water Spray, water mist, Dry Chemical, Carbon Dioxide CO₂, appropriate foam.

Unsuitable extinguishing media:

Never use Water Jet.

Special hazards arising from the substance:

No specific fire or explosion hazard. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. This material is very toxic to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain. Decomposition products may include the following materials: carbon oxides nitrogen oxides sulfur oxides.

Advice for firefighters:

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode

6. Accidental Release Measures

For Non-emergency personnel:

No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Provide adequate ventilation. Put on appropriate personal protective equipment

Steps to be taken in case material is spilled:

Large spill: Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

Environmental Disposal Information

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Waste Disposal:

Pick up and arrange disposal without crating dust. Keep in suitable, closed containers for disposal. Clean up affected area. Reclaim or dispose of in accordance with local, state, and federal regulations.

7. Handling and Storage:

Protective Measures:

Do not breathe dusts/vapor. Handle in well ventilated areas. Eliminate all sources of ignition, and do not generate flames or sparks. Take precautionary measures against static discharges

Handling:

Avoid contact with skin and eyes. Avoid dust generation. Take precautionary measures against static discharges.

Storage:

Do not store above the following temperature: 50°C (122°F). Store in accordance any incompatibilities: with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Store in a cool, dry, ventilated area. Keep containers away from sources of ignition- No smoking. Keep container tightly closed. store separately from oxidizing agents.

8. Exposure Controls / Personal Protection

Exposure Limit Values:

Occupational exposure limits: Not available.
Additional exposure limits under the conditions of use: Not available.

DNEL/DMEL and PNEC-Values:

Exposure controls:

Workers - Hazard via inhalation route-Systemic effects-Long term exposure-DNEL
(Derived No Effect Level): 14 mg/m³
Workers - Hazard via inhalation route-Systemic effects-Acute/short term exposure-DNEL (Derived No Effect Level): 14 mg/m³
Workers - Hazard via inhalation route- Local effects-Long term exposure-DNEL
(Derived No Effect Level): 14 mg/m³
Workers - Hazard via inhalation route- Local effects- cute/short Term exposure-DNEL (Derived No Effect Level): 14 mg/m³
Workers - Hazard via dermal route- Systemic effects- Long term exposure- DNEL (Derived No Effect Level): 67 mg/kg bw/day
Workers - Hazard via dermal route- Systemic effects- Acute/short term exposure -DNEL (Derived No Effect Level): 534 mg/kg bw/day
General Population - Hazard via inhalation route- Systemic effects- Long term exposure- DNEL (Derived No Effect Level): 3.5 mg/m³

General Population - Hazard via inhalation route- Systemic effects- Acute/short term exposure - DNEL (Derived No Effect Level): 3.5 mg/m³
General Population - Hazard via dermal route- Systemic effects- Long term exposure- DNEL (Derived No Effect Level): 33 mg/kg bw/day
General Population - Hazard via inhalation route- Local effects- Acute/short term exposure - DNEL (Derived No Effect Level): 3.5 mg/m³
General Population - Hazard via dermal route- Local effects- Long term exposure- DNEL (Derived No Effect Level): 33 mg/kg bw/day
General Population - Hazard via dermal route- Systemic effects- Long term exposure - DNEL (Derived No Effect Level): 33 mg/kg bw/day
General Population - Hazard via dermal route- Systemic effects- Acute/short term exposure - DNEL (Derived No Effect Level): 266 mg/kg bw/day
General Population - Hazard via oral route- Systemic effects- Long term exposure- DNEL (Derived No Effect Level): 1mg/kg bw/day
General Population - Hazard via oral route- Systemic effects- Acute/short term exposure - DNEL (Derived No Effect Level): 8 mg/kg bw/day
Hazard for aquatic organisms- PNEC aqua (freshwater): 0.002mg/L
Hazard for aquatic organisms- PNEC aqua (marine water): 0mg/L
Hazard for aquatic organisms- PNEC STP: 100 mg/L
Hazard for aquatic organisms- PNEC sediment (freshwater): 0.08 mg/kg sediment dw
Hazard for aquatic organisms- PNEC sediment (marine water): 0.008 mg/kg sediment dw
Hazard for terrestrial organisms- PNEC soil: 0.015 mg/kg soil dw

Respiratory Protection:

Avoid breathing dust. In case of insufficient ventilation, wear suitable respiratory equipment.

Ventilation:

Provide explosion proof ventilation as required to control vapor levels. Ventilation rates should be based upon usage conditions.

Protective Gloves:

Wear appropriate gloves to prevent skin exposure.

Eye Protection:

Wear safety glasses or chemical goggles to prevent eye contact.

Skin and Body Protection:

Wear suitable protective clothing to prevent skin exposure.

Environmental Exposure Controls:

Avoid discharge into the environment. According to local regulation, Federal and official regulations.

9. Physical and Chemical Properties

Appearance: Organic solid

Colour: Light tan-buff

Odour: Aromatic

pH: Not available

Melting point/range (°C): ca. 105 °C

Boiling point/range (°C): Not available

Flash point (°C): Not available

Evaporation rate: Not available

Flammability limit - lower (%): Not available

Flammability (solid, gas): Not flammable

Ignition temperature (°C): Not available

Upper/lower flammability/explosive limits: Not available

Vapour pressure (25°C): 2.1*10⁻⁶ hPa

Vapour density: Not available

Relative density: 1.28 g/cm³(25 °C)

Bulk density (kg/m³): Not available

Water solubility (g/l): 1.74 mg/L at 20 °C and pH of ca. 7.6

n-Octanol/Water (log Po/w): logPow: 3.36 at 25 °C and pH 7

Auto-ignition temperature: Not available

Decomposition temperature: 207 °C

Granulometry: Sieved fraction with diameter < 100 µm: 1.46 % of total sample The mean diameter of the sieved fraction (< 100 µm): 91 µm with the main fraction of 70 % distributing in the range of 10 to 100 µm

Viscosity, dynamic (mPa.s): Not available

Explosive properties: Not available

Oxidising properties: Not available

Molecular Formula: C₁₁H₁₄N₂S₂

Molecular Weight: 238.37

Other information:

Fat solubility(solvent- oil to be specified) etc: Not available

Surface tension: Not available

Dissociation constant in water(pKa): Not available

Oxidation-reduction Potential: Not available

Specific gravity: Not available

10. Stability and Reactivity

<u>Stability:</u>	Stable at room temperature in closed containers under normal storage and handling conditions.
<u>Incompatibility (Materials to Avoid):</u>	Strong oxidizing agents, acids and nitro sating agents.
<u>Conditions to Avoid:</u>	Incompatible material.
<u>Hazardous decomposition products:</u>	Decomposition products may include the following materials: carbon oxides, nitrogen oxides, sulfur oxides.

11. Toxicological Information

Acute toxicity:	LD50(Oral, Rat):>6310 mg/kg bw LD50(Dermal, Rabbit): > 7940 mg/kg bw LC50(Inhalation, Rat): Not available
Skin corrosion/Irritation:	Not classified
Serious eye damage/irritation:	Not classified
Respiratory or skin sensitization:	May cause an allergic skin reaction.
Germ cell mutagenicity:	Not classified
Carcinogenicity:	Not classified
Reproductive toxicity:	Not classified
STOT- single exposure:	Not classified
STOT-repeated exposure:	Not classified
Aspiration hazard:	Not classified

12. Ecological Information

Toxicity:

Acute toxicity		Time	Species	Method	Evaluation	Remarks
LC50	1.38 mg/L	96h	Fish	OECD 203	N/A	N/A
EC50	1.3 mg/L	48h	Daphnia	OECD 202	N/A	N/A
EC50	0.071mg/l	72h	Algae	OECD 201	N/A	N/A

Persistence and degradability:

TBBS is not readily biodegradable with biodegradability of 0% observed in 28 days, TBBS and its described metabolites are expected to be non-biodegradable and hence persistent in surface water, sediment and soil.

<u>Bioaccumulative potential:</u>	Not available.
<u>Mobility in soil:</u>	Not available.
<u>Results of PBT & vPvB assessment:</u>	Not available.
<u>Other adverse effects:</u>	Very toxic to aquatic life with long lasting effects.

13. Disposal Considerations

Disposal methods of the Contaminated Packaging: Disposal must be made according to locally and federal regulations.

14. Transport Information

D.O.T. Shipping Name Not regulated
Canada TDG hazard Class: Not regulated

Europe ADR/RID hazard Class: UN 3077 Class: 9 Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (N-tert-butyl-2-benzothiazole sulfonamide) Packaging group: III

Air - ICAO (international Civil Aviation Organization) UN 3077 Class: 9 Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (N-tert-butyl-2-benzothiazole sulfonamide) Packaging group: III

Sea - IMDG (International Maritime Dangerous Goods) UN 3077 Class: 9 Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (N-tert-butyl-2-benzothiazole sulfonamide) Packaging group: III

15. Regulatory Information

Chemical Safety Assessment has been carried out? YES NO

Relevant information regarding authorization: Not applicable.

Relevant information regarding restriction: Not applicable.

Other EU regulations: Employment restrictions concerning young person must be observed.

For use only by technically qualified individuals.

Other National regulations: Not applicable

SARA Section 355 (extremely hazardous substances)	Substance is not listed.
SARA Section 313 (Specific toxic chemical listings)	Substance is not listed.
TSCA (Toxic Substances Control Act)	Substance is listed.
Proposition 65 (California)	
Chemicals known to cause cancer	Substance is not listed.
Chemicals known to cause reproductive toxicity for females	Substance is not listed.
Chemicals known to cause reproductive toxicity for males	Substance is not listed.
Chemicals known to cause developmental toxicity	Substance is not listed.
Carcinogenic Categories	
EPA (Environmental Protection Agency)	Substance is not listed.
IARC (International Agency for Research on Cancer)	Substance is not listed.
TLV (Threshold Limit Value established by ACGIH)	Substance is not listed.
NIOSH-Ca (National Institute for Occupational Safety and Health)	Substance is not listed.
OSHA-Ca (Occupational Safety & Health Administration)	Substance is not listed.
Canada	
Canadian Domestic Substances List (DSL)	Substance is listed.
Canadian Ingredient Disclosure list (limit 0.1%)	Substance is not listed.
Canadian Ingredient Disclosure list (limit 1%)	Substance is not listed.

16. Other Information

Relevant R-phrases (number and full text):

R43 May cause sensitization by skin contact.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

The above information has been compiled from what we believe to be credible sources. To our knowledge the information is accurate and reliable, however, it is not guaranteed. Any recommendations issued by HB Chemical personnel or literature is derived from experience and by no means should be taken as fact or construed as a recommendation to violate of any law, regulation or patent. It is the users responsibility to determine the suitability of any HB supplied material in their application. The individual conditions of each customer are well outside of our control and we cannot be held liable for its functionality and use. Please contact our office should you need specific information beyond what is supplied above. As with all Chemical usage safety precautions beyond the stated are highly recommended.