

SAFETY DATA SHEET

1. IDENTIFICATION

Product name: 2-(Morpholinothio)benzothiazole
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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

PHYSICAL HAZARDS

Not classified

HEALTH HAZARDS

Acute toxicity (Oral)

Category 4

Skin corrosion/irritation

Category 2

Serious eye damage/eye irritation

Category 2A

Skin sensitization

Category 1

ENVIRONMENTAL HAZARDS

Acute aquatic hazard

Category 2

Long-term aquatic hazard

Category 2

Label elements

Pictograms or hazard symbols



Signal word

Hazard statements

Warning

Harmful if swallowed Causes skin irritation Causes serious eye irritation

May cause an allergic skin reaction Toxic to aquatic life

Toxic to aquatic life with long lasting effects

Precautionary statements

[Prevention]

Avoid breathing dust, fume, mist, vapors or spray.

Avoid release to the environment.

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

Contaminated work clothing should not be allowed out of the workplace. Wash hands and face thoroughly after handling.

Wear protective gloves, eye protection.

[Response]

IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth.

IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Take off contaminated clothing. And wash it before reuse.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.

[Disposal]

Collect spillage.

Dispose of contents and container in accordance with local, regional, national regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/mixture:	Substance
Components:	2-(Morpholinothio)benzothiazole
Percent:	>97.0%(GC)
CAS RN:	102-77-2
Synonyms:	N-Oxydiethylene-2-benzothiazolesulfenamide
Chemical Formula:	C ₁₁ H ₁₂ N ₂ OS ₂

4. FIRST AID MEASURES

Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
Skin contact:	Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.
Eye contact:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion:	Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.
Protection of first-aiders:	A rescuer should wear personal protective equipment, such as rubber gloves and air-tight goggles.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media:	Dry chemical, foam, water spray, carbon dioxide.
Specific hazards arising from the chemical:	Take care as it may decompose upon combustion or in high temperatures to generate poisonous fume.
Precautions for firefighters:	Fire-extinguishing work is done from the windward and the suitable fire-extinguishing method according to the surrounding situation is used. Uninvolved persons should evacuate to a safe place. In case of fire in the surroundings: Remove movable containers if safe to do so.
Special protective equipment for firefighters:	When extinguishing fire, be sure to wear personal protective equipment

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:	Use personal protective equipment. Keep people away from and upwind of spill/leak. Entry to non-involved personnel should be controlled around the leakage area by roping off, etc.
Environmental precautions:	Be careful not to let it flow into rivers, etc., since adverse effects on the environment are concerned.
Methods and materials for containment and cleaning up:	Sweep dust to collect it into an airtight container, taking care not to disperse it. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical measures:	Handling is performed in a well ventilated place. Wear suitable protective equipment. Prevent dispersion of dust. Wash hands and face thoroughly after handling. Use a local exhaust if dust or aerosol will be generated.
Advice on safe handling:	Avoid contact with skin, eyes and clothing.

Conditions for safe storage, including any incompatibilities

Storage conditions:	Keep container tightly closed. Store in a cool and dark place. Store away from incompatible materials such as oxidizing agents.
Packaging material:	Comply with laws.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls:	Install a closed system or local exhaust as possible so that workers should not be exposed directly. Also install safety shower and eye bath.
Personal protective equipment	
Respiratory protection:	Dust respirator. Follow local and national regulations.
Hand protection:	Protective gloves.
Eye protection:	Safety glasses. A face-shield, if the situation requires.
Skin and body protection:	Protective clothing. Protective boots, if the situation requires.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state (20°C):	Solid
Form:	Crystal - Powder
Colour:	White - Pale yellow
Odour:	Sweet
pH:	No data available
Melting point/freezing point:	86°C
Boiling point/range:	No data available
Flash point:	No data available
Flammability or explosive limits:	
Lower:	No data available
Upper:	No data available
Relative density:	No data available
Solubility(ies):	
[Water]	Very slightly soluble
[Other solvents]	
Very soluble:	Benzene, Acetone, Chloroform, Toluene
Soluble:	Methanol
Slightly soluble:	Hexane
Log Pow:	1.02
Autoignition temperature:	240°C

10. STABILITY AND REACTIVITY

Chemical stability:	Stable under proper conditions.
Possibility of hazardous reactions:	No special reactivity has been reported.
Incompatible materials:	Oxidizing agents
Hazardous decomposition products:	Carbon dioxide, Carbon monoxide, Nitrogen oxides (NOx), Sulfur oxides

11. TOXICOLOGICAL INFORMATION

Acute Toxicity:	orl-rat LD50:1980 mg/kg skn-rbt LD50:>3000 mg/kg ipr-mus LD50:100 mg/kg
Skin corrosion/irritation:	skn-rbt 500 mg/24H MLD
Serious eye damage/irritation:	eye-rbt 100 mg/24H MOD
Germ cell mutagenicity:	mno-mus-lym 15 mg/L (+S9) dnr-esc 10 ug/plate
Carcinogenicity:	scu-mus TDLo:464 mg/kg
IARC =	No data available
NTP =	No data available
Reproductive toxicity:	par-rat TDLo:400 mg/kg (4-11D preg)
RTECS Number:	DL5950000

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Fish:	No data available
Crustacea:	No data available
Algae:	No data available
Persistence / degradability:	No data available
Bioaccumulative potential(BCF):	No data available
Mobility in soil	
Log Pow:	1.02
Soil adsorption (Koc):	No data available
Henry's Law (PaM³/mol):	No data available

13. DISPOSAL CONSIDERATIONS

Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

14. TRANSPORT INFORMATION

Hazards Class:	9: Miscellaneous dangerous goods.
UN-No:	3077
Proper shipping name:	Environmentally hazardous substance, solid, n.o.s.
Packing group:	III
Marine pollutant	Y

15. REGULATORY INFORMATION

Regulations on the Control over Safety of Dangerous Chemicals (State Council announces on January 26, 2002 and revised on February 16,2011): Safe use and production, the storage of a dangerous chemical, transport, loading and unloading were prescribed.