



## Safety Data Sheet (SDS)

Revision / Review Date: 3/3/15

### 1. Chemical Product and Company Identification

Product Name: MOR (MBS, NOBS)  
Distributed By: HB Chemical  
1665 Enterprise Parkway  
Twinsburg Oh 44087  
Phone - 330-920-8023  
MSDS Prepared By (w Suppliers Input): HB Chemical  
Chemical Name / Family: 2(4-morpholinyl-thio)-benzothiazole: Vulcafor bsm  
CAS No.: 102-77-2  
EC No.: 203-052-4  
Product Use: Industrial rubber products  
REACH: Not available

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 67/548/EEC and REGULATION (EC) No 1272/2008:

REGULATION (EC) No 1272/2008	
Hazard classes/Hazard categories	Hazard statement
Skin Irrit. 2	H315
Skin Sens. 1	H317
Eye Irrit. 2	H319
Aquatic Chronic 2	H411

For full text of H- phrases: see section 2.2.

67/548/EEC	
Hazards characteristics	R-Phrases
Xi	R36/38

-	R43
N	R51-53

For full text of R- phrases: see section 16.



Hazard Pictograms:

Signal Words:

Warning.

Hazard Statement:

H315: Causes skin irritation.  
H317: May cause an allergic skin reaction.  
H319: Causes serious eye irritation.  
H411: Toxic to aquatic life with long lasting effects.

Precautionary statement:

P261: Avoid breathing dust/fume/gas/mist/vapours/spray.  
P264: Wash hands thoroughly after handling.  
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 soap and water.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P321: Specific treatment (see first aid measures on safety data sheet).  
P332 + P313 If skin irritation occurs: Get medical advice/attention.  
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.  
P337 + P313 If eye irritation persists: Get medical advice/attention.  
P362: Take off contaminated clothing and wash before reuse.  
P363: Wash contaminated clothing before reuse.  
P391: Collect spillage.  
P501: Dispose of contents/container to local regulations.

Other Hazards:

Not available.

### 3. Composition / Information on Ingredients

Ingredient(s):

Chemical Name	Registration No.	CAS No.	EC No.	Concentration
2-(morpholiniothio)benzothiazole	N/A	102-77-2	203-052-4	>97%
Impurities	N/A	N/A	N/A	<3%

#### 4. First Aid Measures

Description of first aid measures:

In all cases of doubt, or when symptoms persist, seek medical attention.

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. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

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 to drink. Stop if the exposed person feels sick as vomiting 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. Get medical attention if adverse health effects persist or are severe. 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

Most important symptoms and effects, both acute and delayed:

Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation.

Indication of any immediate medical attention and special treatment needed:

If skin irritation or rash occurs, get medical advice/attention.

## 5. Fire-Fighting Measures

Suitable Extinguishing Media: In case of fire, use water spray (fog), foam, dry chemical or CO2.

Unsuitable Extinguishing Media: Water Jet.

Special hazards arising from the substance or mixture: No specific fire or explosion hazard. Promptly isolate the scene by removing all people and the vicinity of the incident if there is 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.

Special fire-fighting methods and special protective Actions for fire-fighters: 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 (see EXPOSURE CONTROLS/PERSONAL PROTECTION).

For emergency responders: Wear an appropriate NIOSH/MSHA approved respirator if dust is generated.

Environmental Precautions: 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.

Methods for containment and cleaning up: 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.

Small spill: Move containers from spill area. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.

Additional information: Not applicable.

## 7. Handling and Storage:

### Precaution for safe handling:

#### Protective measures:

Put on appropriate personal protective equipment (see Exposure control/Personal protection). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous.

### Advise on general occupational hygiene:

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

### Conditions for safe storage, including any incompatibilities:

Store in accordance 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. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

### Specific end uses:

Laboratory chemicals, manufacture of substances.

## 8. Exposure Controls / Personal Protection

### Occupational exposure limits:

Not available.

### Additional exposure limits under the conditions of use:

Not available.

### DNELIDMEL and PNEC-Values:

Not available.

### Exposure Controls:

#### Appropriate engineering controls:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements or environmental protection legislation. In some cases, fume

scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Respiratory Protection:

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: In case of dust formation particle filter.

Thermal Hazards:

Wear suitable protective clothing to prevent heat.

Protective Gloves:

Type of gloves recommended: Butyl rubber.  
Minimum breakthrough time / gloves: 480 min.  
Minimum thickness / gloves 0.11 mm.

Eye Protection:

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. Recommended: safety glasses with side-shields.

Skin and Body Protection:

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental exposure controls:

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

## 9. Physical and Chemical Properties

Appearance:

Solid derived from melting point of 70-90 °C

Color & Odor:

Light tan / Sweet odor

Odour threshold:

Not available.

PH:

Not available.

Melting point/range (°C):

81.9-84.79 °C

Boiling point V range (°C):

216.1 °C

Flash point (°C):

Not available.

Evaporation Rate :

Not available.

Flammability limit – lower (%):

Not available.

Flammability (solid, gas):

Non-flammable.

Ignition temperature (°C):

Not available.

Upper/lower flammability/ explosive limits:

Not available.

<u>Vapour pressure (25°C):</u>	0.000679Pa
<u>Vapour density:</u>	Not available.
<u>Relative Density:</u>	1.37 g/cm <sup>3</sup>
<u>Bulk density (kg/m<sup>3</sup>):</u>	Not available.
<u>Water solubility (g/l):</u>	ca. 39 mg/L (20°C)
<u>n-Octanol/Water (log Po/w):</u>	Not available.
<u>Auto-ignition temperature:</u>	Not available.
<u>Decomposition temperature:</u>	Not available.
<u>Viscosity , dynamic (mPa.Ş):</u>	Not available.
<u>Explosive properties:</u>	Non explosive
<u>Oxidizing properties:</u>	Not oxidizing.
<u>Molecular Formula:</u>	C111-112N2082
<u>Molecular Weight:</u>	252.37
<u>Other information:</u>	
<u>Fat solubility(solvent— oil to be specified)etc:</u>	Not available.
<u>Surface tension:</u>	Not available.
<u>Dissociation constant in water( pKa):</u>	ca.2.65
<u>Oxidation-reduction Potential:</u>	Not available.
<u>Specific gravity:</u>	1.34 (25°C)

## **10. Stability and Reactivity**

<u>Stability:</u>	Stable at room temperature in closed containers under normal storage and handling conditions.
<u>Possibility of hazardous reaction:</u>	No dangerous reactions known.
<u>Incompatibility (Materials to Avoid):</u>	No specific data.
<u>Conditions to Avoid:</u>	Incompatible materials. Can form nitrosamined in the presence of certain organic material and if heated.
<u>Hazardous decomposition products:</u>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## **11. Toxicological Information**

<u>Toxicokinetics, metabolism and distribution:</u>	Non-human toxicological data: Not available.
<u>Information on toxicological effects:</u>	
<u>Acute toxicity:</u>	

LD50(Oral, Rat):	>5000 mg/kg
LD50(Dermal, Rabbit):	> 7940 mg/kg bw
LC50(Inhalation, Rat):	Not available.
<u>Skin corrosion/Irritation:</u>	Causes skin irritation.
<u>Serious eye damage/irritation:</u>	Causes serious eye irritation.
<u>Respiratory or skin sensitization:</u>	May cause an allergic skin reaction.
<u>Germ cell mutagenicity:</u>	Not classified.
<u>Carcinogenicity:</u>	Not classified.
<u>Reproductive toxicity:</u>	Not classified.
<u>STOT- single exposure:</u>	Not classified.
<u>STOT-repeated exposure:</u>	Not classified.

## 12. Ecological Information

### Toxicity:

Acute toxicity		Time	Species	Method	Evaluation	Remarks
LC50	11.5 mg/L	96h	Fish	OECD 203	N/A	N/A
EC50	0.71 mg/L	48h	Daphnia	OECD 202	N/A	N/A
EC50	N/A	72h	Algae	OECD 201	N/A	N/A

Persistence and degradability: Not available.

Bio accumulative potential: Not available.

Mobility in soil: Not available.

Results of PBT&vPvB assessment: Not available.

Other adverse effects: Not available.

## 13. Disposal Considerations

Waste treatment methods: The material should be disposed of by incineration in a chemical incinerator in compliance with national and regional requirements.

Product / Packaging disposal: If empty container retains product residues, all label precautions must be observed. Return for reuse or dispose according to national or local regulations



#### 14. Transport Information

	Land transport(ADR/RID)	Sea transport (IMDG)	Air transport (ICAO/IATA)
UN-Number	3077	3077	3077
UN Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.( 2-(morpholiniothio)benzothiazole)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.( 2-(morpholiniothio)benzothiazole)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.( 2-(morpholiniothio)benzothiazole)
Transport hazard Class	9	9	9
Packaging group	III	III	III
Environmental hazards	Yes	Yes	Yes
Special precautions for user	See section 2.2	See section 2.2	See section 2.2
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	IBC08	IBC08	IBC08

#### 15. Regulatory Information

Relevant information regarding authorization: Not applicable.

Relevant information regarding restriction: Not applicable.

Other EU regulations: Employment restrictions concerning young person must be observed. For us only by technically qualified individual.

#### 16. Other Information

Relevant R- phrases (number and full text):

R36/38: Irritating to eyes and skin.

R43: May cause sensitization by skin contact.

R51-53: 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 user's 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.