

RONGCHENG CHEMICAL GENERAL FACTORY CO.,LTD.  
Add: No.288, Rongsheng road, Rongcheng, Shandong, China.  
Tel:+86-0631-7523793/7525668 Fax:+86-0631-7521672  
Email: eiraluan@rcchem.cn/ xs@rcchem.cn

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## Material Safety Data Sheets

### ACCELERATOR NOBS (MBS)

#### Section 1 - Chemical Product and Company Identification

**Product name:** ACCELERATOR NOBS (MOR/MBS)  
**Chemical name** 2-(4-Morpholiniothio)benzothiazole  
**Supplier** RONGCHENG CHEMICAL GENERAL FACTORY CO.,LTD.  
NO.288 RONGSHENG ROAD, RONGCHENG, SHANDONG, CHINA.  
**Emergency telephone** +86-631-7523779  
**Intended use** Vulcanization accelerator

#### Section 2 - Composition, Information on Ingredients

This product is to be considered as a substance in conformance to EC directives.

Information on hazardous ingredients

**Chemical description** 2-(4-Morpholiniothio) benzothiazole

##### Composition / information on ingredients

Number	% w/w	CAS-number	Chemical name	
1	> 96	102-77-2	2-(4-Morpholiniothio) benzothiazole	
Number	EC-number	Annex-1 number	Symbol(s)	Risk-phrase(s)
1	203-052-4	613-113-00-0	N Xi	R36/38 R43 R51/53

**Other information** Formula: C<sub>11</sub>H<sub>12</sub>N<sub>2</sub>O<sub>2</sub>S<sub>2</sub>.

#### Section 3 - Hazards Identification

Irritating to eyes and skin.

May cause sensitization by skin contact.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

#### Section 4 - First Aid Measures

**Symptoms and effects** Dust may be irritating to the respiratory tract and cause symptoms of bronchitis.

Repeated contact may cause skin sensitization.

##### First aid

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

**Inhalation** Move to fresh air. If symptoms persist, seek medical advice.

**Skin** Remove all contaminated clothing immediately. Wash off with plenty of soap and water. Seek medical advice if irritation develops. Launder clothes before reuse.

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**Eye** Rinse thoroughly with plenty of water. Eyelids should be held away from the eyeball to ensure thorough rinsing. Seek medical advice if irritation develops.

**Ingestion** Rinse mouth, give water to drink.

**Advice to physician** No specific recommendations.

## Section 5 - Fire Fighting Measures

**Extinguishing media** water spray, foam, dry chemical powder, CO2

**Unsuitable extinguishing media** water jet.

**Special exposure hazards** Emits toxic fumes under fire conditions.

**Hazardous decomposition/ combustion products** carbon monoxide (CO); Sulfur oxides (SOx), nitrous gases (NOx).

**Protective equipment** Wear self contained breathing apparatus.

**Other information** Do not allow run-off from fire fighting to enter drains or water courses.

## Section 6 - Accidental Release Measures

**Personal precautions** For personal protection see Section 8.

**Environmental precautions** Avoid discharge into the environment.

**Methods for cleaning up** Collect as much as possible in a clean container for (preferable) reuse or disposal.

## Section 7 - Handling and Storage

**Handling** Avoid contact with eyes. Avoid contact with skin. Avoid dust generation.

**Fire and explosion prevention** Take precautionary measures against static discharges.

Avoid dust accumulation.

Dust/air mixtures may ignite violently upon exposure to sparks or sources of ignition.

Kst: 169 bar.m/s.

Maximum corrected explosion pressure: 8.1 bar.

**Storage requirements** Store in a dry and cool place.

## Section 8 - Exposure Controls, Personal Protection

**Engineering controls** Avoid dust generation. Ensure good ventilation and local exhaustion of the working area.

**Exposure limits**

**Name**

2-(4-Morpholinothio)benzothiazole OES-TWA 5.0 mg/m<sup>3</sup> ()

**Personal protection**

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

**Hand** Wear protective gloves.

**Eye** Wear safety goggles.

**Skin and body** Wear suitable protective clothing.

## Section 9 - Physical and Chemical Properties

**Appearance** granules; flakes

**Color** pale

**Odor** mild, amine like

**Boiling point/range** not relevant

**Melting point/range** 82 - 88 °C

**Flash point** approx. 176 °C (open cup)

**Flammability** solid substance: not (in)flammable.

**Auto-ignition temperature** 380 °C

**Explosive properties** dust explosion hazard

**Explosion limits** Lower Explosion Limit (LEL): 20 g/m<sup>3</sup>.  
Minimum ignition energy: =< 3 mJ.

**Oxidizing properties** not applicable

**Vapor pressure** Negligible at room temperatures

**Density** 1360 kg/m<sup>3</sup> (20 °C)

**Bulk density** approx. 560 kg/m<sup>3</sup>

**Solubility in water** approx. 40 mg/l (Practically insoluble)

**Solubility in other solvents** in most organic solvents

**pH value** not determined

**Partition coefficient n-octanol/water** Log Pow = 3.49 (25 °C)

**Relative vapor density (air=1)** not applicable

**Viscosity** not applicable

## Section 10 - Stability and Reactivity

**Stability** Stable under recommended storage and handling conditions (see section 7).

**Conditions to avoid** Heating > 130 °C

**Materials to avoid** Nitrosating agents

**Hazardous decomposition products** Thermal decomposition products: carbon monoxide (CO), nitrous gases (NO<sub>x</sub>), Sulfur oxides (SO<sub>x</sub>), MORPHOLINE ( Harmful by inhalation, in contact with skin and if swallowed, Corrosive )

**Other information** During the vulcanization process, traces of carcinogenic N-nitrosamines may be formed from decomposition products (amines) in the presence of nitrosating agents.

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## Section 11 - Toxicological Information

**Name** 2-(4-Morpholiniothio)benzothiazole

### Acute toxicity

**Oral LD50** rat: >7940 mg/kg.

**Dermal LD50** rabbit: >7940 mg/kg.

### Irritation

**Skin** Slightly irritating to skin but not sufficient for classification.

**Eye** Slightly irritating to eyes but not sufficient for classification.

**Sensitization** Patch testing (Human experience): Sensitizing.

## Section 12 - Ecological Information

**Name** 2-(4-Morpholiniothio)benzothiazole

### Ecotoxicity

**fish** 96h-LC50 (Lepomis macrochirus): 4.4 mg/l.

96h-LC50 (Oncorhynchus mykiss): 1.3 mg/l.

96h-LC50 (Pimephales promelas): 3.5 mg/l.

**daphnia** 48h-EC50 (Daphnia magna): 4.0 mg/l.

**algae** 96h-LC50 (Selenastrum capricornutum): 2.0 mg/l.

### Fate

**Degradation Abiotic** Hydrolysis: 100% (7 days)

**Other information** 48h-LC50 (Midge): 5.3 mg/l

## Section 13 - Disposal Considerations

**Product** Avoid discharge into the environment.

Small quantities: According to local regulations.

Large quantities: Consult Richon for special advice.

**Contaminated packaging** According to local regulations.

**Other information** Waste code number: Please refer to your specific industry in the European Waste Catalogue.

## Section 14 - Transport Information

*Land transport (ADR/ RID)*

**ADR class** 9

**RID class** 9

**Hazard Identification No.** 90

**TREM-Card** 3077912c01

**ADR/RID packing group** III

**Substance Identification No.** 3077

**UN number** 3077

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**Proper Shipping Name** Environmentally hazardous substance, solid, n.o.s.  
(2-(4-morpholiniothio)benzothiazole)  
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(2-(4-Morpholiniothio)benzothiazole)

*Sea transport (IMDG-code/ IMO)*

<b>IMO/IMDG code</b> not relevant	<b>Class</b> not restricted
<b>Packing group</b> not relevant	<b>UN number</b> none
<b>EMS</b> none	<b>Subsidiary Risk</b> none
<b>Marine pollutant</b> no	
<b>Proper Shipping Name</b> not relevant	

*Air transport (ICAO-TI/ IATA-DGR)*

<b>ICAO-TI/IATA-DGR</b>	<b>UN number</b> 3077
<b>Class</b> 9	<b>Packing group</b> III
<b>Proper Shipping Name</b> Environmentally hazardous substance, solid, n.o.s. (2-(4-morpholiniothio)benzothiazole)	

## Section 15 - Regulatory Information

**Chemical description** 2-(4-Morpholiniothio)benzothiazole

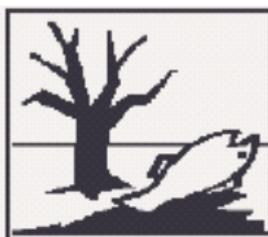
Labelling according to EC directives

**EC-number** See section 2

**Classification based on** Annex-1 to directive 67/548/EEC



**Symbol(s)** IRRITANT (Xi)



DANGEROUS FOR THE ENVIRONMENT (N)

**R(isk) phrase(s)** R 36/38 Irritating to eyes and skin

R 43 May cause sensitization by skin contact

R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

**S(afety) phrase(s)** S 24 Avoid contact with skin

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

S 37 Wear suitable gloves

S 61 Avoid release to the environment. Refer to special instructions/Safety data sheets

**Other information** To be displayed on the label: "EC label".

**Wassergefährdungsklasse (WGK)** 2 (VwVwS Anhang 3, Nr. 6608)

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## **Section 16 - Additional Information**

This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.