



Safety Data Sheet (SDS) International (GHS)

Revision date: 2018-10-30

SECTION 1: Identification

Product identifiers:

Product trade name: CURE-RITE* MBDS Accelerator
Company product number: MBDS
Other means of identification: 2-(Morpholinodithio)benzothiazole

Recommended use of the chemical and restrictions on use:

Uses: Cure accelerator for rubber.
Restrictions on use: None identified

Details of the supplier:

Manufacturer/Supplier: Emerald Performance Materials, LLC
1499 SE Tech Center Place, Suite 300
Vancouver, WA 98683
United States
Telephone: +1-360-954-7100
FAX: +1-360-954-7201
For further information about this SDS: Email: product.compliance@emeraldmaterials.com

Emergency telephone number:

ChemTel (24 hours): 1-800-255-3924 (USA); +1-813-248-0585 (outside USA);
1-300-954-583 (Australia); 000-800-100-4086 (India).

SECTION 2: Hazard(s) identification

Classification of the substance or mixture:

Skin Sensitizer, category 1, H317
Eye Irritation, category 2, H319

Label elements:

Hazard pictogram(s):



Signal word:

Warning

Hazard statements:

H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.

Precautionary statements:

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/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.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.

SDS Name: CURE-RITE* MBDS Accelerator

P501 Dispose of contents/container in accordance with local, regional and international regulations.

Supplemental information: Contains 95-100 % of components with unknown hazards to the aquatic environment.

Precautionary statements are listed according to the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Annex III. Regulations in individual countries/regions may determine which statements are required on the product label. See product label for specifics.

Other hazards: May form explosible dust-air mixture if dispersed.

See Section 11 for toxicological information.

SECTION 3: Composition/information on ingredients

Mixture:

<u>CAS-No.</u>	<u>Chemical Name</u>	<u>Weight%</u>
0000095-32-9	2-(Morpholinodithio)benzothiazole	95-100
0008042-47-5	White mineral oil	1-<5
0000110-91-8	Morpholine	0.1-<1.0

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non-hazardous, and/or present at amounts below reportable limits.

SECTION 4: First-aid measures

Description of first aid measures:

General: If irritation or other symptoms occur or persist from any route of exposure, remove the affected individual from the area: see a physician/get medical attention.

Eye contact: Immediately flush eyes with plenty of clean water for an extended time, not less than fifteen (15) minutes. Flush longer if there is any indication of residual chemical in the eye. Ensure adequate flushing of the eyes by separating the eyelids with fingers and roll eyes in a circular motion. If eye irritation persists: Get medical advice/attention.

Skin contact: Immediately remove contaminated clothing and shoes. Wash the affected area with plenty of soap and water until no evidence of the chemical remains (at least 15-20 minutes). Launder clothing before reuse. If skin irritation occurs: Get medical advice/attention.

Inhalation: If affected, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a POISON CENTER or doctor/physician if you feel unwell.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse out the mouth with water. Get medical attention immediately.

Protection of first aid responders: Wear proper personal protective clothing and equipment.

Most important symptoms and effects, both acute and delayed: Irritation. Preexisting sensitization, skin and/or respiratory disorders or diseases may be aggravated. See section 11 for additional information.

Indication of any immediate medical attention and special treatment needed, if necessary: Treat symptomatically.

SECTION 5: Fire-fighting measures

Extinguishing media:

Suitable: Carbon dioxide, foam, dry chemical, water.

Unsuitable: Avoid hose streams or any method which will create dust clouds.

Special hazards arising From the chemical:

Unusual fire/explosion hazards: Concentrated dust/air combinations may produce explosive conditions. As with all organic dusts, fine particles suspended in air in critical proportions and in the presence of an ignition source may ignite and/or explode. Dust may be sensitive to ignition by electrostatic discharge, electrical arcs, sparks, welding torches, cigarettes, open flame, or other significant heat sources. As a precaution, implement standard safety measures for handling finely divided organic powders. See Section 7 for suggested measures.

Hazardous combustion products: Irritating or toxic substances will be emitted upon burning, combustion or decomposition. See section 10 (Hazardous decomposition products) for additional information.

Special protective equipment and precautions for fire-fighters: Avoid hose streams or any method which will create dust clouds. Wear self-contained breathing apparatus (SCBA) equipped with a full facepiece and operated in a pressure-demand mode (or other positive pressure mode) and approved protective clothing. Personnel without suitable respiratory protection must leave the area to prevent significant exposure to hazardous gases from combustion, burning or decomposition. In an enclosed or poorly ventilated area, wear SCBA during cleanup immediately after a fire as well as during the attack phase of firefighting operations.

See section 9 for additional information.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures: See Section 8 for recommendations on the use of personal protective equipment. If spilled in an enclosed area, ventilate. Avoid raising powdered material due to explosion hazard. Use spark-proof and explosion-proof equipment. If inhalation of dust cannot be avoided, wear an approved particulate respirator. Personal Protective Equipment must be worn.

Environmental precautions: Do not flush product into public sewer, water systems or surface waters.

Methods and materials for containment and cleaning up: Contain spill. Wear proper personal protective clothing and equipment. Using care to avoid dust generation, vacuum or sweep into a closed container for reuse or disposal. Use approved industrial vacuum cleaner for removal. Avoid causing dust. Place into labeled, closed container; store in safe location to await disposal. Change contaminated clothing and launder before reuse.

SECTION 7: Handling and storage

Precautions for safe handling: As with any chemical product, use good laboratory/workplace procedures. Wash thoroughly after handling this product. Always wash up before eating, smoking or using the facilities. Use under well-ventilated conditions. Avoid eye and skin contact. Avoid drinking, tasting, swallowing or ingesting this product. Avoid routine inhalation of dust of any kind. Exercise care when emptying containers, sweeping, mixing or doing other tasks which can create dust. Wash contaminated clothing before reuse. Provide eyewash fountains and safety showers in the work area. As a precaution to control dust explosion potential, implement the following safety measures: Eliminate ignition sources (e.g., sparks, static buildup, excessive heat, etc.). In general, dust of organic materials is a static charge generator which may be ignited by electrostatic discharge, electrical arcs, sparks, welding torches, cigarettes, open flame, or other significant heat sources. Use spark-proof tools and equipment. Bond, ground and properly vent conveyors, dust control devices and other transfer equipment. Prohibit flow of polymer, powder or dust through non-conductive ducts, vacuum hoses or pipes, etc.; only use grounded, electrically conductive transfer lines when pneumatically conveying product. Good housekeeping and controlling of dusts are necessary for safe handling of product. Prevent accumulation of dust (e.g., well-ventilated conditions, promptly vacuuming spills, cleaning overhead horizontal surfaces, etc.).

Conditions for safe storage, including any incompatibilities: Store cool and dry, under well-ventilated conditions. Keep away from heat, sparks and open flames. Store this material away from incompatible substances (see section 10). Store product where temperature is below 43°C (109°F). Do not store in open, unlabeled or mislabeled containers. Keep container closed when not in use.

SECTION 8: Exposure controls / personal protection

Control parameters:

Occupational exposure limits (OEL):

<u>Chemical Name</u>	<u>ACGIH - TWA/Ceiling</u>	<u>ACGIH - STEL</u>			
2-(Morpholinodithio)benzothiazole	N/E	N/E			
White mineral oil	5 mg/m ³ TWA (inhalable particulate matter)	N/E			
Morpholine	20 ppm TWA (skin)	N/E			
<u>Chemical Name</u>	<u>Australia</u>	<u>New Zealand</u>	<u>Korea</u>	<u>Taiwan</u>	
2-(Morpholinodithio)benzothiazole	N/E	N/E	N/E	N/E	
White mineral oil	5 mg/m ³ TWA	5 mg/m ³ TWA, 10 mg/m ³ STEL	N/E	5 mg/m ³ TWA, 10 mg/m ³ STEL	
Morpholine	20 ppm TWA	20 ppm TWA (skin)	20 ppm TWA, 30 ppm STEL (skin)	20 ppm TWA, 30 ppm STEL (skin)	
<u>Chemical Name</u>	<u>Japan ISHL</u>	<u>Japan JSOH</u>	<u>Indonesia</u>	<u>Malaysia</u>	
2-(Morpholinodithio)benzothiazole	N/E	N/E	N/E	N/E	
White mineral oil	N/E	3 mg/m ³ OEL	5 mg/m ³ TWA, 10 mg/m ³ STEL	5 mg/m ³ TWA (mist)	
Morpholine	N/E	N/E	20 ppm TWA	20 ppm TWA (skin)	

Chemical Name	Philippines	Singapore
2-(Morpholinodithio)benzothiazole	N/E	N/E
White mineral oil	5 mg/m3 TWA	5 mg/m3 PEL, 10 mg/m3 STEL
Morpholine	20 ppm TWA (skin)	20 ppm PEL

N/E=Not established (no exposure limits established for the listed substances for listed country/region/organization).

PNOS: ACGIH has recommended the following exposure limits for Particulates (insoluble or poorly soluble) not otherwise specified (PNOS): 10 mg/m3 TWA (inhalable particles), 3 mg/m3 TWA (respirable particles).

Exposure controls:

Appropriate engineering controls: Always provide effective general and, when necessary, local exhaust ventilation to draw dust away from workers to prevent routine inhalation. Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the SDS. Eliminate ignition sources (e.g., sparks, static buildup, excessive heat, etc.). Prohibit flow of powder or dust through non-conductive ducts, vacuum hoses, or pipes, etc. Bond, ground, and properly vent conveyors, dust control devices and other transfer equipment.

Individual protection measures, such as personal protective equipment:

Eye/face protection: Safety glasses or goggles required.

Skin and body protection: Wear chemical resistant (impervious) gloves. Use good laboratory/workplace procedures including personal protective clothing: labcoat, safety glasses and protective gloves.

Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment. If inhalation of dust cannot be avoided, wear an approved particulate respirator.

Further information: Eyewash fountains and safety showers are recommended in the work area.

SECTION 9: Physical and chemical properties

Form:	Powder	pH:	Not Available
Appearance:	Cream to yellow	Relative density:	1.51
Odor:	Slight	Partition coefficient (n-octanol/water):	1.59 (calculated)
Odor threshold:	Not Available	% Volatile by weight:	Not Available
Solubility in water:	Negligible	VOC:	Not Available
Evaporation rate:	Not Available	Boiling point °C:	>207 °C Decomposes
Vapor pressure:	Not Available	Boiling point °F:	>405 °F Decomposes
Vapor density:	Not Available	Flash point:	>94 °C (>200 °F) Estimated
Viscosity:	Not Available	Auto-ignition temperature:	Not Available
Melting point/Freezing point:	123-132°C (253-270°F)	Flammability (solid, gas):	May form combustible dust concentrations in air.
Oxidizing properties:	Not oxidizing	Flammability or explosive limits:	LFL/LEL Not Available
Explosive properties:	Not explosive		UFL/UEL Not Available
Decomposition temperature:	Not Available		

Other information: Amounts specified are typical and do not represent a specification.

Dust combustibility data: 2-(4-MORPHOLINYLDITHIO)BENZOTHIAZOLE: Particle size variation is considered a critical factor in regards to dust explosion hazard information. Results applicable as follows: sample particle size <75 um, 0.5% moisture content.:

- Minimum ignition energy: 1-3 mJ

SECTION 10: Stability and reactivity

Reactivity: Reaction with nitrites, nitrates and/or other nitrosating agents may lead to the formation of nitrosamines. Slowly decomposes in contact with water.

Chemical stability: This product is stable. Prolonged storage above 43 °C (109 °F) will initiate chemical changes resulting in loss of

SDS Name: CURE-RITE* MBDS Accelerator

accelerator functionality.

Possibility of hazardous reactions: Hazardous polymerization will not occur.

Conditions to avoid: Excessive heat and ignition sources. Avoid dust formation.

Incompatible materials: Avoid contact with strong oxidizing agents. Avoid contact with water. Avoid contact with nitrosating agents. Depending on the amount and specific materials involved, contact can result in intense heat, boiling, flame development, explosion or toxic gas generation.

Hazardous decomposition products: Carbon dioxide, carbon monoxide, hydrocarbons, oxides of nitrogen, morpholine, and oxides of sulfur.

SECTION 11: Toxicological information

Information on likely routes of exposure:

General: Caution must be exercised through the prudent use of protective equipment and handling procedures to minimize exposure.

Eyes: Causes serious eye irritation.

Skin: May cause allergic skin reaction. Repeated or prolonged skin contact may cause irritation.

Inhalation: Prolonged or repeated inhalation of dust can cause respiratory tract irritation.

Ingestion: Ingestion may cause irritation.

Acute toxicity information: Not classified (based on available data, the classification criteria are not met). No toxicity studies have been conducted on this product. ATEmix (oral): >5000 mg/kg. ATEmix (dermal): >2000 mg/kg.

<u>Chemical Name</u>	<u>Inhalation LC50</u>	<u>Species</u>	<u>Oral LD50</u>	<u>Species</u>	<u>Dermal LD50</u>	<u>Species</u>
2-(Morpholinodithio)benzothiazole	N/E	N/E	11500 mg/kg	Rat/ adult	N/E	N/E
White mineral oil	N/E	N/E	>5000 mg/kg	Rat/ adult	>2000 mg/kg	Rabbit/ adult
Morpholine	8 mg/L (vapor)	Rat/ adult	1900 mg/kg	Rat/ adult	500 mg/kg	Rabbit/ adult

Skin corrosion/irritation: Not classified (based on available data, the classification criteria are not met).

<u>Chemical Name</u>	<u>Skin irritation</u>	<u>Species</u>
2-(Morpholinodithio)benzothiazole	N/E	N/E
White mineral oil	N/E	N/E
Morpholine	Corrosive	Rabbit/ adult

Serious eye damage/irritation: Causes serious eye irritation - Category 2 (2A).

<u>Chemical Name</u>	<u>Eye irritation</u>	<u>Species</u>
2-(Morpholinodithio)benzothiazole	Irritant	Similar materials
White mineral oil	N/E	N/E
Morpholine	Severe irritant	Rabbit/ adult

Respiratory or skin sensitization: Skin sensitization - Category 1.

<u>Chemical Name</u>	<u>Skin sensitisation</u>	<u>Species</u>
2-(Morpholinodithio)benzothiazole	Sensitizer	Similar material(s)
White mineral oil	N/E	N/E
Morpholine	Non-sensitizer	Guinea Pig/ adult

Carcinogenicity: Not classified.

Germ cell mutagenicity: Not classified (based on available data, the classification criteria are not met). 2-(MORPHOLINODITHIO) BENZOTHIAZOLE: Bacterial reverse mutation assays with and without activation and Mammalian cell gene mutation assay (Balb 3T3 mouse cells) without activation were negative.

Reproductive toxicity: Not classified (based on available data, the classification criteria are not met). 2-(MORPHOLINODITHIO) BENZOTHIAZOLE: Developmental toxicity study, rat: NOEL maternal toxicity=1000 mg/kg/day; NOEL teratogenicity=1000 mg/kg/day.

Specific target organ toxicity (STOT) - single exposure: Not classified (based on available data, the classification criteria are not met).

SDS Name: CURE-RITE* MBDS Accelerator

Specific target organ toxicity (STOT) - repeated exposure: Not classified (based on available data, the classification criteria are not met). 2-(MORPHOLINODITHIO)BENZOTHIAZOLE: Repeated dose study, 28 days, oral, rat: NOEL (no-observable-effect-level)=300 mg/kg/day in males and 100 mg/kg/day in females (due to high relative liver weights).

Aspiration hazard: Not classified (technical impossibility to obtain the data).

Other toxicity information: No additional information available.

SECTION 12: Ecological information

Ecotoxicity: No ecological testing has been conducted on this product.

<u>Chemical Name</u>	<u>Species</u>	<u>Acute</u>	<u>Acute</u>	<u>Chronic</u>
2-(Morpholinodithio)benzothiazole	Fish	N/E	N/E	N/E
2-(Morpholinodithio)benzothiazole	Invertebrates	N/E	N/E	N/E
2-(Morpholinodithio)benzothiazole	Algae	N/E	N/E	N/E
White mineral oil	Fish	LC50 >10000 mg/L (96 hours)	N/E	N/E
White mineral oil	Invertebrates	N/E	N/E	N/E
White mineral oil	Algae	N/E	N/E	N/E
Morpholine	Fish	LC50 180-380 mg/L (96 hours)	LC50 179 mg/L(96 hours)	N/E
Morpholine	Invertebrates	EC50 45 mg/L (24 hours)	N/E	NOEC 5 mg/L (21 days)
Morpholine	Algae	EC50 28 mg/L (96 hours)	N/E	NOEC 10 mg/L(96 hours)

Persistence and degradability: Not expected to be readily biodegradable.

<u>Chemical Name</u>	<u>Biodegradation</u>
2-(Morpholinodithio)benzothiazole	Not expected to be readily biodegradable
White mineral oil	Not readily biodegradable (OECD 301B)
Morpholine	Readily biodegradable (OECD 301E)

Bioaccumulative potential: Not expected to bioaccumulate.

<u>Chemical Name</u>	<u>Bioconcentration Factor (BCF)</u>	<u>Log Kow</u>
2-(Morpholinodithio)benzothiazole	N/E	1.59 (calculated)
White mineral oil	N/E	>6
Morpholine	<2.8 (OECD 305C)	-2.55

Mobility in soil: No specific information available.

<u>Chemical Name</u>	<u>Mobility in soil (Koc/Kow)</u>
2-(Morpholinodithio)benzothiazole	N/E
White mineral oil	N/E
Morpholine	7.356

Other adverse effects: No additional information available.

SECTION 13: Disposal considerations

Dispose of unused contents (incineration or landfill) in accordance with national and local regulations. Dispose of container in accordance with national and local regulations. Ensure the use of properly authorized waste management companies, where appropriate.

See Section 8 for recommendations on the use of personal protective equipment.

SECTION 14: Transport information

The information below is provided to assist in documentation. It may supplement the information on the package. The package in your possession may carry a different version of the label depending on the date of manufacture. Depending on inner packaging quantities and packaging instructions, it may be subject to specific regulatory exceptions.

UN number: N/A

UN proper shipping name:

Not regulated - See Bill of Lading for Details

Transport hazard class(es):

U.S. DOT hazard class: N/A

Canada TDG hazard class: N/A

SDS Name: CURE-RITE* MBDS Accelerator

Europe ADR/RID hazard class: N/A
IMDG Code (ocean) hazard class: N/A
ICAO/IATA (air) hazard class: N/A

A "N/A" listing for the hazard class indicates the product is not regulated for transport by that regulation.

Packing group: N/A

Environmental hazards:

Marine pollutant: Not Applicable
Hazardous substance (USA): Not Applicable

Special precautions for user: Not Applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:

<u>Chemical Name</u>	<u>Category</u>
Morpholine	Category Y

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question:

Japan regulations:

Japan Industrial Safety and Health Law:

<u>Chemical name</u>	<u>Category</u>
White mineral oil	Notifiable substance, Harmful substance
Morpholine	Dangerous Substance, Notifiable substance, Harmful substance

Japan Fire Service Law:

<u>Chemical name</u>	<u>Category</u>
Morpholine	Group 4 - Flammable liquids

Japan Poisonous and Deleterious Substances:

<u>Chemical name</u>	<u>Category</u>	<u>Threshold</u>
No subject chemicals		

Japan Prevention of Marine Pollution and Disaster:

<u>Chemical name</u>	<u>Category</u>
White mineral oil	Noxious Category X
Morpholine	Noxious Category Y

Japan Chemical Substances Control Law:

<u>Chemical name</u>	<u>Category</u>	<u>Notes</u>
Morpholine	Priority assessment chemical	Substance control number 81

Korean regulations:

Korea Industrial Safety and Health Act:

<u>Chemical name</u>	<u>Category</u>	<u>Threshold</u>
No subject chemicals		

Korea Act on Registration and Evaluation of Chemical Substances (K-REACH) - Substances subject to registration:

No subject chemicals

Korea Chemical Control Act (CCA):

<u>Chemical name</u>	<u>Category</u>	<u>Code</u>	<u>Threshold</u>
No subject chemicals			

Korea Safety Control of Dangerous Substances Act (MPSS):

<u>Chemical name</u>	<u>Class</u>	<u>Threshold</u>
No subject chemicals		

Korea Waste Control Act: Waste disposal methods must comply with local and national laws.

<u>Chemical name</u>	<u>Notes</u>
No subject chemicals	

Other regulations: No Additional Information

Chemical inventories:

<u>Regulation</u>	<u>Status</u>
Australian Inventory of Chemical Substances (AICS):	Y
Canadian Domestic Substances List (DSL):	Y
Canadian Non-Domestic Substances List (NDSL):	N
China Inventory of Existing Chemical Substances (IECSC):	Y
European EC Inventory (EINECS, ELINCS, NLP):	Y
Japan Existing and New Chemical Substances (ENCS):	Y

<u>Regulation</u>	<u>Status</u>
Japan Industrial Safety and Health Law (ISHL):	Y
Korean Existing and Evaluated Chemical Substances (KECL):	Y
New Zealand Inventory of Chemicals (NZIoC):	Y
Philippines Inventory of Chemicals and Chemical Substances (PICCS):	Y
Taiwan Inventory of Existing Chemicals:	Y
U.S. Toxic Substances Control Act (TSCA):	Y

A "Y" listing indicates all intentionally added components are either listed or are otherwise compliant with the regulation. A "N" listing indicates that for one or more components: 1) there is no listing on the public inventory; 2) no information is available; or 3) the component has not been reviewed. A "Y" for New Zealand may mean that a qualified group standard may exist for the components in this product.

Chemical inventory notes: New Zealand: One or more components may be covered by a group standard.

Europe REACH (EC) 1907/2006: One or more applicable components of this mixture are not registered. Please contact your sales representative for further information regarding REACH compliance. REACH is only relevant to substances either manufactured or imported into the EU. REACH information regarding this product is provided for informational purposes only. Each Legal Entity may have differing REACH obligations, depending on their place in the supply chain. For material manufactured outside of the EU, the importer of record must understand and meet their specific obligations under the regulation.

SECTION 16: Other information

Legend:

* : Trademark owned by Emerald Performance Materials, LLC.
ACGIH: American Conference of Governmental Industrial Hygienists
N/A: Not Applicable
N/E: None Established
STEL: Short Term Exposure Limit
TWA: Time Weighted Average (exposure for 8-hour workday)

Users Responsibility/Disclaimer of Liability:

The information set forth herein is based on our current knowledge, and is intended to describe the product solely with respect to health, safety and the environment. As such, it must not be interpreted as a guarantee of any specific property of the product. As a result, the customer shall be solely responsible for deciding whether said information is suitable and beneficial.

Safety Data Sheet Preparer:
Product Compliance Department
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Vancouver, WA 98683
United States