



Safety Data Sheet (SDS)

Revision / Review Date: 3/24/15

1. Chemical Product and Company Identification

Product Name:	DTDM
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:	4,4-Dithiodimorpholine
CAS:	103-34-4
EC No.:	203-103-0
REACH:	Regulation (EU) No. 1907/2006 (REACH), Annex II
Used:	Used as rubber accelerator in rubber goods manufacture.
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 of the substance or mixture: Skin sensitization Category 1; H317 Hazardous to the aquatic environment Chronic category 2: H411.

Classification according to Directive 67/548/EEC: Xi; R43 - N; R51/53.

Label elements: Hazardous ingredient: Di(morpholin-4-yl)disulphide

Hazard pictograms:



Signal word: Warning

Hazard statements:
H317: May cause an allergic skin reaction.
H411: Toxic to aquatic life with long lasting effects.

Medical Conditions Generally Aggravated by Exposure:

<u>Eye Contact:</u>	Flush eyes with water for 15 minutes. May cause eye irritation. Call a physician if irritation develops.
<u>Skin Contact:</u>	Prolonged or repeated skin contact may cause skin irritation. Remove contaminated clothing and wash skin with soap and water. If in contact with hot product, treat as a burn.
<u>Ingestion:</u>	Do not induce vomiting. Give two glasses of water. Never give anything to a unconscious person. Call a physician. If victim does vomit keep head below waist to prevent vomit from entering the lungs.
<u>Inhalation:</u>	Inhalation may cause upper respiratory irritation. Irritation of mucous membranes may cause soreness in nose or throat. Remove to fresh air. Give artificial respiration or oxygen if necessary.

3. Composition / Information on Ingredients

Hazardous ingredient:

<i>Substance name</i>	<i>CAS No.</i>	<i>EC No.</i>	<i>Molecular formula</i>	<i>Classification under DSD</i>	<i>Classification under CLP</i>	<i>% (w/w)</i>
Di(morpholin-4-yl) disulphide	103-34-4	203-103-0	C ₈ H ₁₆ N ₂ O ₂ S ₂	Xi; R43 N; R51/53	Skin Sens. 1; H317 Aquatic Chronic 2; H411	95 - 99

The rest unspecified ingredients are impurities, and they are not hazard.

4. First Aid Measures

<u>General notes:</u>	In all cases of doubt, or when symptoms persist, seek medical attention.
<u>Inhalation:</u>	Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If symptoms persist, seek medical advice.
<u>Eyes:</u>	Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical advice if irritation persists.
<u>Skin:</u>	Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Seek medical advice if irritation develops.
<u>Ingestion:</u>	Rinse mouth. Give water to drink. In all cases of doubt seek medical advice.
<u>Note for the doctor:</u>	Treat symptomatically and supportively.
<u>Most important symptoms and effects, both acute</u>	

And delayed:

Inhalation: Dust may be irritating to the respiratory tract and cause symptoms of bronchitis. Skin contact: Repeated contact may cause skin sensitization.

Indication of the immediate medical attention and Special treatment needed:

Persons with pre-existing skin, eye, or respiratory disease may be at increased risk from the irritant or allergic properties of this material. Attending physician should treat exposed patients Symptomatically.

5. Fire-Fighting Measures

Suitable Extinguishing Media:

Carbon dioxide, dry chemical, foam, water spray.

Unsuitable extinguishing Media:

For this product no limitations of extinguishing agents are given.

Special Fire Fighting Procedures:

Do not stay in dangerous zone without self-contained breathing apparatus. In order to avoid contact with skin, keep a safety distance and wear full protective clothing, including self-contained breathing equipment. Prevent fire-fighting water from entering surface water or groundwater.

Special hazards arising from the substance or mixture:

Hazardous decomposition products formed under fire conditions: Carbon oxides, nitrogen oxides (NO_x), Sulphur oxides.

6. Accidental Release Measures

Personal precautions, protective equipment and Emergency procedures:

Use personal protective equipment. Avoid Dust formation. Avoid breathing dust. Ensure adequate ventilation.

Environmental precautions:

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and material for containment and Cleaning up:

Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

Waste Disposal:

Reclaim or dispose of in accordance with local, state, and federal regulations.

7. Handling and Storage:

Precautions to be taken in handling:

Avoid direct physical contact. Use appropriate, approved safety equipment. Untrained individuals should not handle this chemical or its container. Handling should occur in a chemical fume hood.

Conditions for safe storage, including

any incompatibilities:

Keep in a tightly closed container in a cool, dry location. Store only with compatible chemicals.

8. Exposure Controls / Personal Protection

Occupational exposure limit values:

There are no currently occupational exposure limit values established for the substance.

DNEL(Derived No Effect Level) for workers:

There are no DNEL values for workers available for the substance.

DNEL(Derived No Effect Level) for the general population:

There are no DNEL values for the general population available for the substance.

PNEC(Predicted No Effect Concentration) values: There are no PNEC values available for the substance.

Exposure Controls:

Local exhaust ventilation as necessary to control any air contaminants to within their exposure limits during the use of this product. Adequate ventilation should be provided to keep dust concentrations below acceptable exposure limits. Discharge from the ventilation system should comply with the applicable air pollutions control regulations. Eliminate ignition sources.

Respiratory Protection:

In conditions where dust may be generated, wear a suitable dust mask.

Protective Gloves:

Use protective gloves. The glove material must be sufficiently impermeable and resistant to the substance. Check the tightness before wear. Gloves should be well cleaned before being removed.

Eye Protection:

Sufficient eye protection must be worn. Wear chemical safety goggles.

Skin and Body Protection:

To prevent repeated or prolonged skin contact, wear impervious clothing. Pay attention to skin care.

Other Precautions:

Wash with soap and water before eating, drinking or using toilet facilities. Launder contaminated clothing before reuse.

Environmental exposure controls:

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Decontamination Facilities:

Eye bath, washing facilities (sinks / showers)

9. Physical and Chemical Properties

Appearance:

Solid

Colour:

White or light-yellow

<u>Odour:</u>	Odourless
<u>Ph:</u>	No data available.
<u>Melting point:</u>	125- 130 C°
<u>Boiling point:</u>	No data available.
<u>Density:</u>	No data available.
<u>Specific gravity:</u>	1.36 g/cm ³ at 25° C
<u>Vapor Pressure :</u>	3.55 x 10 ⁽⁻⁵⁾ hPa at 25° C (EPI)
<u>Partition coefficient (n-octanol/water):</u>	2.49 at 25° C
<u>Solubility (ies):</u>	237 ppm at 25° C, practically insoluble in water.
<u>Flash point:</u>	No data available
<u>Explosion limits:</u>	Not determined.
<u>Oxidizing properties:</u>	No data available.

10. Stability and Reactivity

<u>Stability:</u>	Stable under recommended storage conditions.
<u>Possibility of hazardous reactions:</u>	No other hazardous reactions known.
<u>Incompatibility (Materials to Avoid):</u>	Strong oxidizing agents.
<u>Conditions to Avoid:</u>	Keep away from strong heating and incompatible materials.
<u>Hazardous decomposition products:</u>	Carbon oxides, nitrogen oxides (NOx), Sulphur oxides (Sox)

11. Toxicological Information

<u>Toxicokinetics, metabolism and distribution:</u>	No relevant information available.
<u>Acute toxicity:</u>	
Acute Oral toxicity:	LD ₅₀ = 5600 mg/kg (rat);
Acute Inhalation toxicity:	LC ₅₀ = 1624 mg/m ³ (mice);
Acute Dermal toxicity:	LD ₅₀ > 5010 mg/kg (rabbit);
<u>Skin corrosion/irritation:</u>	No relevant information available.
<u>Serious eye damage/ irritation:</u>	No relevant information available.
<u>Respiratory or skin sensitization:</u>	No relevant information available.
<u>CMR effects (Carcinogenicity, Mutagenicity, and Toxicity for Reproduction):</u>	Reproductive toxicity : No adequate data were located. M

Mutagenicity: negative, not mutagenic.
Carcinogenicity: This product or one of its ingredients present 0.1% or more is NOT listed as a carcinogen or suspected Carcinogen by NTP, IARC or OSHA.

STOT-single exposure and repeated exposure:

Not classified as specific target organ toxicant, single exposure or repeated exposure. The toxicological properties have not been fully investigated.

12. Ecological Information

Toxicity :

Acute toxicity to fish: LC₅₀ = 1.6 mg/l/96h (*Oncorhynchus mykiss*);
Acute toxicity to daphnia: LC₅₀ = 4.5 mg/l/48h (*Daphnia magna*);
Acute toxicity to algae: EC₅₀ = 29 mg/l/96 h (*Selenastrum capricornutum*)

Persistence and Degradability:

Hydrolysis: T1/2 = 168 hr @ 23°C pH 7.0;
Bio-degradation: 76% (49 days, 20.1 mg/l).

Bio accumulative potential:

Log Pow=2.49; No appreciable bioaccumulation potential is to be expected.

Mobility in soil:

Based on best current information, there is no data known associated with this product.

Results of PBT and vPvB assessment:

PBT/vPvB assessment information is not available as the chemical safety assessment not conducted.

13. Disposal Considerations

Observe all federal, state and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

14. Transport Information

Land transport:

UN-No.: 3077
Official transport designation: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(Di(morpholin-4-yl) disulphide)
Class: 9
Classification Code: M7
Packing group: III
Hazard label: 9

Sea transport:

Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Di(morpholin-4-yl) disulphide)
Class:	9
UN-No.:	3077
Packing group:	III

Air transport:

Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Di(morpholin-4-yl) disulphide)
Class:	9
UN-No.:	3077
Packing group:	III

15. Regulatory Information

EU regulation:	
Authorisations:	No information available.
Restrictions on use:	No information available.
EINECS:	CAS# 103-34-4 is listed in the inventory.
DSD (67/548/EEC):	CAS# 103-34-4 is not listed in the Annex I.
Other chemical regulation:	
USA - TSCA:	CAS# 103-34-4 is listed in the inventory.
Canada - DSL:	CAS# 103-34-4 is listed in the inventory.
Australia - AICS:	CAS# 103-34-4 is listed in the inventory.
Korea - ECL:	CAS# 103-34-4 is listed in the inventory.
Japan - ENCS:	CAS# 103-34-4 is listed in the inventory.
China - IECSC:	CAS# 103-34-4 is listed in the inventory.

<u>Chemical Safety Assessment:</u>	No Chemical Safety Assessment has been carried out for this substance.
------------------------------------	--

16. Other Information

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.