



Sovchem[®] DTDM

| 1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION | |
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| Manufacturer Sovereign Chemical Company 4040 Embassy Parkway, Suite 190 Akron, OH 44333 | Emergency Contact Chemtrec: 1-800-424-9300 (USA) (1)330-542-8400 (outside USA) |
| Trade Name(s): Sovchem [®] DTDM Granule, Powder, Oiled Powder | Chemical Name: 4,4'-dithiodimorpholine |
| Relevant identified uses of the substance or mixture and uses advised against: No further relevant information available. | Application of the substance/the preparation: Chemicals for synthesis. |
| Issued By: Sovereign Chemical Company 4040 Embassy Parkway, Suite 190 Akron, Ohio 44333 | Date of Issue: May 1, 2026 |

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Information in accordance with US 29 CFR 1910.1200 (Hazcom 2012), Regulation (EC) No 1272/2008, 1907/2006/EC (REACH), and GHS

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| Hazard Pictograms (CLP) | :  GHS07,  GHS09 |
| Signal Word | : Warning |
| Hazard statements (CLP) | : H317 – May cause an allergic skin reaction, Category 1 H335 – May cause respiratory irritation, Category 3 H410 - Very toxic to aquatic life with long lasting effects, Category 1 |
| Precautionary statements (CLP) | : P261 – Avoid breathing dust/fume/gas/mist/vapors/spray P272 - Contaminated work clothing should not be allowed out of the workplace P280 - Wear protective clothing, eye protection, face protection, protective gloves P302+P352 - IF ON SKIN: Wash with plenty of soap and water P321 – Specific treatment (see supplemental first aid instructions on this label) P333+ P313 - If skin irritation or rash occurs: Get medical advice/attention P501 - Dispose of contents/ container to an approved waste disposal plant P363 - Wash contaminated clothing before reuse P271 - Use only outdoors or in a well-ventilated area. P304 + P340 - IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell. P312 - Call a POISON CENTER or doctor/physician if you feel |

Other Hazard : unwell.
 P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
 P405 – Store locked up.
 P273 - Avoid release to the environment
 P391 - Collect spillage. Hazardous to the aquatic environment
 : This substance does not meet the criteria for PBT / vPvB of REACH regulation, annex XIII

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

| Chemical Name | CAS No | EC No | Weight % | Classification |
|-------------------------|----------|-----------|----------|--|
| 4,4'-dithiodimorpholine | 103-34-4 | 203-193-0 | ≥ 95 | H317 – May cause an allergic skin reaction, Category 1 H335 – May cause respiratory irritation, Category 3 H410 - Very toxic to aquatic life with long lasting effects, Category 1 |

4. FIRST AID MEASURES

Description of first aid measures

First-aid measures general: In all cases of doubt, or when symptoms persist, seek medical attention.

First-aid measures after inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.

First-aid measures after skin contact: Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before reuse. If skin irritation persists, call a physician.

First-aid measures after eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.

First-aid measures after ingestion: Rinse mouth. DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Seek immediate medical attention/advice.

Most important symptoms and effects, both acute and delayed

General: May cause an allergic skin reaction. May cause respiratory irritation.

Indication of any immediate medical attention and special treatment needed

General: Treat symptomatically. Persons with pre-existing skin, eye, or respiratory disease may be at increased risk from the irritant or allergic properties of this material. Physician should treat exposed patients symptomatically.

5. FIRE FIGHTING MEASURES

Extinguishing media

Suitable extinguishing agents: Water spray (fog). Foam. Dry chemical. Carbon dioxide (CO₂).

Unsuitable extinguishing agents: No information available.

Special hazards arising from the substance or mixture

General: Thermal decomposition can lead to release of irritating and toxic gases and vapors, such as carbon oxides, nitrogen oxides, sulfur oxides.

Advice for firefighters

General: 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.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

General measures: Evacuate personnel to safe areas. Ensure adequate ventilation, especially in confined areas. Remove all sources of ignition. Do not touch or walk through spilled material. Avoid contact with skin, eyes or clothing. Avoid generation of dust. Avoid breathing dust/fume/gas/mist/vapors/spray. Use personal protection recommended in Section 8.

Environmental precautions

General precautions: Local authorities should be advised if significant spillages cannot be contained. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

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

Reference to other sections

Sections: See Section 7 for more information
See section 8 for more information
See section 13 for more information

7. HANDLING AND STORAGE

Precautions for safe handling

General: Handle in accordance with good industrial hygiene and safety practice. Ensure adequate ventilation, especially in confined areas. Avoid contact with skin, eyes or clothing. Wash contaminated clothing before reuse. Take precautionary measures against static discharges. Avoid generation of dust. Do not breathe dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Use personal protection recommended in Section 8

Conditions for safe storage, including any incompatibilities

General: Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition. Store away from strong oxidizing agents. Avoid exposure to direct sunlight. Keep locked up and out of reach of children. Keep away from food, drink and animal feeding stuffs. Store in accordance with local regulations.

Specific end use(s)

General: No other information available.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

Control Parameters

Exposure limits: No data available.

Derived no effect limit (DNEL): No data available. No chemical safety assessment has been carried out

Predicted no effect concentration (PNEC): No data available. No chemical safety assessment has been carried out

Exposure controls

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| Engineering 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. |
| Personal protective equipment: | Suitable protective clothing. |
| Eye protection: | Wear safety glasses with side shields (or goggles). |
| Hand protection: | Wear 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, then stored in a well-ventilated location. Pay attention to skin care |
| Respiratory protection: | In case of insufficient ventilation, wear suitable respiratory equipment. |
| Thermal hazard: | No additional information available |
| 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. |

9. PHYSICAL AND CHEMICAL PROPERTIES
Information on basic physical and chemical properties

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| Form: Solid powder or granule | Melting Point/Range: 125-130 °C |
| Color: White to light yellow | Boiling Point/Range: 216 °C |
| Odor: Odorless | Odor threshold: Not determined |
| pH: Not determined | Flash point: Not applicable |
| Vapor Pressure: 0.004 Pa (25 °C) | Flammability: Not flammable |

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| Density at 20 °C: 1.38 g/cm ³ | Ignition temperature: Not applicable |
| Relative density: 0.452 (20 °C) | Decomposition temperature: 216 °C |
| Solubility: Water: 215 mg/L (20.2 °C) | Partition coefficient (n-octanol/water): 2.67 (22 °C) |
| Oxidizing properties: Not determined | Explosion limits: Lower: Not applicable Upper: Not applicable |

Other information: No further relevant information available.

10. STABILITY AND REACTIVITY

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| Reactivity: | Stable under recommended storage and handling conditions. |
| Chemical Stability: | Stable under normal conditions. |
| Possibility of hazardous reactions: | None under normal processing. |
| Conditions to avoid: | Heat, flames and sparks. Incompatible materials. |
| Incompatible materials: | Strong oxidizing agents. |
| Hazardous decomposition products: | Carbon oxides (CO _x), nitrogen oxides (NO _x), sulfur oxides (SO _x). |

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity: Not classified

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| 4,4'-dithiodimorpholine (CAS #: 103-34-4) | |
| LD50 oral rat | 5000 mg/kg |
| LD50 dermal rabbit | > 5010 mg/kg |

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| Skin corrosion/irritation: | Not classified, rabbit |
| Serious eye damage: | Not classified, rabbit |
| Sensitization: | May cause an allergic skin reaction |
| Germ cell mutagenicity: | Negative. Not classified |

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.

Reproductive toxicity: Not classified

STOT single exposure: Not classified

STOT multiple exposure: Not classified

Aspiration hazard: Not classified

Endocrine disrupting properties: The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

Other information: No information available

12. ECOLOGICAL INFORMATION

Toxicity
 Toxic to aquatic life with long lasting effects.

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| 4,4'-dithiodimorpholine (CAS #: 103-34-4) | |
| LC50 96h - Fish | 3.68 mg/l <i>Oncorhynchus mykiss</i> (previous name: <i>Salmo gairdneri</i>) |
| EC50 48h - Crustacea | 4.5 mg/l <i>Daphnia magna</i> |
| EC50 72h - Algae | 35 mg/l <i>Pseudokirchneriella subcapitata</i> (previous names: <i>Raphidocelis subcapitata</i> , <i>Selenastrum capricornutum</i>) |

Persistence and degradability
 Degradation of test substance: 75% (49d)
 Inherently biodegradable.

Bioaccumulative potential
 Log Pow = 2.67 (22 °C); No appreciable bioaccumulation potential is to be expected.

Mobility in soil
 Log Koc: 1.63

Results of PBT and vPvB assessment
 This substance is not considered to be persistent, bioaccumulating nor toxic (PBT). This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

Endocrine disrupting properties
 The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the

criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

Other adverse effects
No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

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| Waste from residues/unused products: | Disposal should be in accordance with applicable regional, national and local laws and regulations. |
| Contaminated packaging: | Disposal should be in accordance with applicable regional, national and local laws and regulations. |

14. TRANSPORTATION INFORMATION

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| UN-Number | |
| DOT | N/A |
| ADR, ADN, IMDG, IATA, RID | UN3077 |
| UN proper shipping name | |
| DOT | N/A |
| ADR, ADN, IMDG, IATA, RID | 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE SOLID, N.O.S (Di(morpholin-4-yl) disulphide) |
| Transport hazard class(es) | |
| DOT | N/A |
| ADR, ADN, IMDG, IATA, RID | 9 |
| Packing group | |
| DOT | N/A |
| ADR, ADN, IMDG, IATA, RID | III |
| Environmental hazards | Marine Pollutant |
| Marine pollutant | Yes (fish and tree symbol) |
| Special Marking (ADR) | Fish and tree symbol |
| Special Marking (IATA) | Fish and tree symbol |
| Special precautions for user | Not data available |
| Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code UN "Model Regulation" | Not applicable |

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

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| SARA Section 355 (extremely hazardous substances) | Not listed |
| SARA Section 313 (Specific toxic chemical listings) | Not listed |

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| TSCA (Toxic Substances Control Act) | Listed |
| Proposition 65 (California) | |
| Chemicals known to cause cancer | Not listed |
| Chemicals known to cause reproductive toxicity for females | Not listed |
| Chemicals known to cause reproductive toxicity for males | Not listed |
| Chemicals known to cause developmental toxicity | Not listed |
| Carcinogenic Categories | |
| IARC (International Agency for Research on Cancer) | Not listed |
| TLV (Threshold Limit Value established by ACGIH) | Not listed |
| NIOSH-Ca (National Institute for Occupational Safety and Health) | Not listed |
| OSHA (Occupational Safety & Health Administration) | Not listed |
| Canada | |
| Canadian Domestic Substances List (DSL) | Listed |
| Canadian Ingredient Disclosure list (limit 0.1%) | Not listed |
| Canadian Ingredient Disclosure list (limit 1%) | Not listed |
| REACH | |
| REACH Candidate List | Not listed |
| REACH XIV List | Not listed |

Chemical safety assessment:

No chemicals safety assessment has been carried out

16. OTHER INFORMATION

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship