Safety Data Sheet
Sovchem® TMTD

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Emergency Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sovereign Chemical Company</td>
<td>Chemtrec: 1-800-424-9300 (continental USA)</td>
</tr>
<tr>
<td>1225 West Market Street</td>
<td>1-703-527-3887 (outside continental)</td>
</tr>
<tr>
<td>Akron, OH  44313</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trade Name(s):</th>
<th>Synonyms:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sovchem® TMTD Oiled Powder or Granule</td>
<td>TMTD, thiram, Thioperoxidicarboxylic diamide tetramethyl, Bis (dimethylthiocarbamoyl) disulfide</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name:</th>
<th>CAS Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetramethylthiuram disulfide</td>
<td>137-26-8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Relevant identified uses of the substance or mixture and uses advised against:</th>
<th>Application of the substance/the preparation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>No further relevant information available.</td>
<td>Initial product for chemical reactions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Issued By:</th>
<th>SDS Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sovereign Chemical Company</td>
<td>1523</td>
</tr>
</tbody>
</table>

According to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and GHS

<table>
<thead>
<tr>
<th>Issue Date:</th>
<th>Revision Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 2, 2014</td>
<td>5 (Supercedes July 12, 2010)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Change(s):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Update to GHS requirement.</td>
</tr>
</tbody>
</table>

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008
The following Hazard Statements are applicable only to the EU regulations and not the US GHS regulation: H400, H410.

- **GHS08 Health hazard**
  - STOT RE 2
  - H373: May cause damage to organs through prolonged or repeated exposure.

- **GHS09 Environment**
  - Aquatic Acute 1
  - H400: Very toxic to aquatic.
  - Aquatic Chronic 1
  - H410: Very toxic to aquatic life with long lasting effects.

- **GHS07**
  - Acute Tox. 4
  - H302: Harmful if swallowed.
  - Acute Tox. 4
  - H332: Harmful if inhaled.
  - Skin Irrit. 2
  - H315: Causes skin irritation.
  - Eye Irrit. 2
  - H319: Causes serious eye irritation.
  - Skin Sens. 1
  - H317: May cause an allergic skin reaction.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

- **Xn; Harmful**
  - R22-48/22: Harmful if swallowed. Harmful: danger of serious damage to health by prolonged exposure if swallowed.

- **Xi; Sensitizing**
  - R43: May cause sensitization by skin contact.

- **N; Dangerous for the environment.**
  - R50/53: Very toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment.
2.2 Label elements

Labeling according to Regulation (EC) No 1272/2008
The substance is classified and labeled according to the CLP regulation.

Hazard pictograms

This pictogram only applicable for EU regulations. Not for use in the United States (OSHA GHS)

GHS07   GHS08   GHS09

Signal word: Warning

Hazard-determining components of labeling: thiram

Hazard statements
The following Hazard Statements are applicable only to the EU regulations and not the US GHS regulation: H410.
H302+H332  Harmful if swallowed or if inhaled.
H315  Causes skin irritation.
H319  Causes serious eye irritation.
H317  May cause an allergic skin reaction.
H373  May cause damage to organs through prolonged or repeated exposure.
H410  Very toxic to aquatic life with long lasting effects.

Precautionary statements
P260  Do not breathe dust/fume/gas/mist/vapors/spray.
P280  Wear protective gloves/protective clothing/eye protection/face protection.
P264  Wash thoroughly after handling.
P260  Do not breathe dust.
P305+P351+P338  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P301+P312  IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P304+P340  IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P314  Get medical advice/attention if you feel unwell.
P302+P352  IF ON SKIN: Wash with plenty of soap and water.

Additional information: Contains thiram. May produce an allergic reaction.

Hazard description

WHMIS-symbols

D2A –Very toxic material causing other toxic effects

NFPA ratings (scale 0-4)

Health = 2
Fire = 0
Reactivity = 0

HMIS ratings (scale 0-4)

Health = *2
Fire = 0
Reactivity = 0

* - Indicates a long term health hazard from repeated or prolonged exposures.

HMIS Long Term Health Hazard Substances: Substance is not listed.

2.3 Other hazards

Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
3. **COMPOSITION/INFORMATION ON INGREDIENTS**

3.1 Substances

CAS No. Description: 137-26-8 thiram

Identification number(s)

EC number: 205-286-2

Index number: 006-005-00-4

4. **FIRST AID MEASURES**

4.1 Description of first aid measures

General information

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

Immediately remove any clothing soiled by the product.

In case of irregular breathing or respiratory arrest provide artificial respiration.

**After inhalation**

Supply fresh air.

Seek immediate medical advice.

In case of irregular breathing or respiratory arrest provide artificial respiration.

**After skin contact**

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

**After eye contact**

Remove contact lenses if worn.

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

**After swallowing**

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; call for medical help immediately.

4.2 Most important symptoms and effects, both acute and delayed

- Gastric or intestinal disorders
- Coughing
- Dizziness
- Headache
- Disorientation

Hazard

- Danger of convulsion.
- Danger of impaired breathing.
- Danger of circulatory collapse.
- Danger of disturbed cardiac rhythm.
- Condition may deteriorate with alcohol consumption.

4.3 Indication of any immediate medical attention and special treatment needed

Contains THIRAM. Consult literature for specific antidotes.

If swallowed, gastric irrigation.

If necessary oxygen respiration treatment.

Initial treatment with corticosteroid inhalants.

Medical supervision for at least 48 hours.

5. **FIRE FIGHTING MEASURES**

5.1 Extinguishing media

Suitable extinguishing agents:

CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

For safety reasons unsuitable extinguishing agents: None.

5.2 Special hazards arising from the substance or mixture

Formation of toxic gases is possible during heating or in case of fire.
5.3 Advice for firefighters

Protective equipment
- Wear self-contained respiratory protective device.
- Wear fully protective suit.

Additional information: Cool endangered receptacles with water spray.

6. **ACCIDENTAL RELEASE MEASURES**

6.1 Personal precautions, protective equipment and emergency procedures
- Use respiratory protective device against the effects of fumes/dust/aerosol.
- Wear protective equipment. Keep unprotected persons away.
- Ensure adequate ventilation.

6.2 Environmental precaution
- Inform respective authorities in case of seepage into water course or sewage system.
- Do not allow to enter sewers/surface or ground water.

6.3 Methods and material for containment and cleaning up
- Pick up mechanically.
- Dispose contaminated material as waste according to item 13.

6.4 Reference to other sections
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

7. **HANDLING AND STORAGE**

7.1 Precautions for safe handling
- Prevent formation of dust.
- Ensure good ventilation/exhaustion at the workplace.
- Any unavoidable deposit of dust must be regularly removed.
- Take note of emission threshold.

Information about fire - and explosion protection
- Keep respiratory protective device available.
- Dust can combine with air to form an explosive mixture.

7.2 Conditions for safe storage, including any incompatibilities

Storage
- Requirements to be met by storerooms and receptacles
  - Provide ventilation for receptacles.
  - Store in a cool location.

Information about storage in one common storage facility
- Store away from oxidizing agents.
- Do not store together with acids.
- Store away from foodstuffs.

Further information about storage conditions: None.

7.3 Specific end use(s):
No further relevant information available.

8. **EXPOSURE CONTROLS - PERSONAL PROTECTION**

Additional information about design of technical facilities: No further data; see item 7.

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace: 137-26-8 thiram

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>PEL (USA)</td>
<td>5 mg/m³</td>
<td></td>
</tr>
<tr>
<td>REL (USA)</td>
<td>5 mg/m³</td>
<td></td>
</tr>
<tr>
<td>TLV (USA)</td>
<td>0.05* mg/m³</td>
<td>SEN;*as inhalable fraction and vapor</td>
</tr>
<tr>
<td>EL (Canada)</td>
<td>1 mg/m³</td>
<td>S</td>
</tr>
<tr>
<td>EV (Canada)</td>
<td>1 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

DNELs: No further relevant information available.
PNECs: No further relevant information available.

Additional information: The lists valid during the making were used as basis.

8.2 Exposure controls

Personal protective equipment

General protective and hygienic measures

The usual precautionary measures are to be adhered to when handling chemicals.

Pregnant women should strictly avoid inhalation or skin contact.

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Do not inhale dust / smoke / mist.

Respiratory protection

Combined Organic Vapor and Particulate Respirator is recommended for use during all processing activities.

Protection of hands

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

Material of gloves

Neoprene gloves

Nitrile rubber, NBR

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection

Safety glasses with side shields or face shield strongly suggested.

Body protection: Full head, face and neck protection.

Limitation and supervision of exposure into the environment: No further relevant information available.

Risk management measures

See Section 7 for additional information.

No further relevant information available.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>General Information</th>
<th>Change in Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td><strong>Melting Point/Melting Range:</strong> 148 °C (298 °F).</td>
</tr>
<tr>
<td>Form: Crystalline.</td>
<td>Boiling Point/Boiling Range: Undetermined.</td>
</tr>
<tr>
<td>Color: Light Yellow.</td>
<td>Octanol/Water Partition Coefficient: Not determined.</td>
</tr>
<tr>
<td>Odor: Characteristic.</td>
<td>pH Value: Not applicable.</td>
</tr>
<tr>
<td>Odor threshold:</td>
<td>Flash point: Not applicable.</td>
</tr>
<tr>
<td>Vapor pressure:</td>
<td>Flammability (solid, gaseous): May cause fire.</td>
</tr>
<tr>
<td>Density at 20 °C:</td>
<td>Ignition temperature: Not determined.</td>
</tr>
<tr>
<td>1.42 g/cm³.</td>
<td>Decomposition temperature: Not determined.</td>
</tr>
<tr>
<td>Relative density:</td>
<td>Self-igniting: Not determined.</td>
</tr>
<tr>
<td>Not determined.</td>
<td>Danger of explosion: Product does not present an explosion hazard.</td>
</tr>
<tr>
<td>Vapor density:</td>
<td>Explosion limits:</td>
</tr>
<tr>
<td>Not applicable.</td>
<td>Lower: Not determined.</td>
</tr>
<tr>
<td>Evaporation rate:</td>
<td>Upper: Not determined.</td>
</tr>
<tr>
<td>Not applicable.</td>
<td>Solubility in / Miscibility with water: Insoluble.</td>
</tr>
<tr>
<td>Solubility in water:</td>
<td></td>
</tr>
<tr>
<td>Organic solvents:</td>
<td>Solids content: Not determined.</td>
</tr>
<tr>
<td>Not determined.</td>
<td></td>
</tr>
</tbody>
</table>

Viscosity

Dynamic: Not applicable.

Kinematic: Not applicable.

Solvent content: Organic solvents: Not determined.
9.2 Other information: No further relevant information available.

### 10. STABILITY AND REACTIVITY

10.1 Reactivity

10.2 Chemical stability

**Thermal decomposition / conditions to be avoided:** No decomposition if used and stored according to specifications.

10.3 Possibility of hazardous reactions

- Toxic fumes may be released if heated above the decomposition point.
- As the product is supplied it is not capable of dust explosion; however, enrichment with fine dust causes risk of dust explosion.
- Reacts with strong oxidizing agents.
- Reacts with strong acids.

10.4 Conditions to avoid

- Keep ignition sources away - Do not smoke.
- Store away from oxidizing agents.

10.5 Incompatible materials: No further relevant information available.

10.6 Hazardous decomposition products

- Sulfur oxides (SOx)
- Nitrogen oxides (NOx)
- Carbon monoxide and carbon dioxide
- Hydrogen cyanide (prussic acid)

### 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

**Acute toxicity**

- **Primary irritant effect**
  - On the skin: Irritant to skin and mucous membranes.
  - On the eye: Irritating effect.

**Sensitization**

- Sensitizing effect through inhalation is possible by prolonged exposure.
- Sensitization possible through skin contact.

**Additional toxicological information**

- Harmful
- Toxic and/or corrosive effects may be delayed up to 24 hours.
- Danger through skin adsorption.

**Sensitization:** Sensitization possible by inhalation and/or dermal contact.

**Repeated dose toxicity:** Repeated exposures may result in skin and/or respiratory sensitivity.

### 12. ECOLOGICAL INFORMATION

12.1 Toxicity

**Aquatic toxicity:** Toxic for aquatic organisms.

12.2 Persistence and degradability: Not easily biodegradable.

12.3 Bioaccumulative potential: May be accumulated in organism.

12.4 Mobility in soil: No further relevant information available.

**Ecotoxicological effects**

**Remark**

- Very toxic for fish.
- Toxic for water fleas.

**Additional ecological information**

**General notes**

- The product may not be released into the environment without control.
- Due to available data on eliminability/decomposition and bioaccumulation potential prolonged term damage of the environment cannot be excluded.
- Water hazard class 3 (German Regulation) (Self-assessment): extremely hazardous for water.
Do not allow product to reach ground water, water course or sewage system, even in small quantities. Danger to drinking water if even extremely small quantities leak into the ground. Also poisonous for fish and plankton in water bodies. Very toxic for aquatic organisms.

12.5 Results of PBT and vPvB assessment

PBT: Not applicable.
vPvB: Not applicable.

12.6 Other adverse effects: No further relevant information available.

### 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

**Recommendation**

Must not be disposed together with household garbage. Do not allow product to reach sewage system. Can be burned with household garbage after consulting with the waste disposal facility operator and the pertinent authorities and adhering to the necessary technical regulations. The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.

**Un-cleaned packaging**

**Recommendation:** Disposal must be made according to official regulations.

### 14. TRANSPORTATION INFORMATION

#### 14.1 UN-Number

| DOT, ADR, IMDG, IATA | UN3077 |

#### 14.2 UN proper shipping name:

| DOT | Environmentally hazardous substances, solid, n.o.s. (thiram) |
| ADR | 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE SOLID, N.O.S (thiram) |
| IMDG | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (thiram), MARINE POLLUTANT |
| IATA | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (thiram) |

#### 14.3 Transport hazard class(es)

| DOT, IMDG, IATA | 9 Miscellaneous dangerous substances and articles. |

<table>
<thead>
<tr>
<th>Class</th>
<th>Label</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

#### 14.4 Packing group

| DOT | N/A |
| ADR, IMDG, IATA | III |

#### 14.5 Environmental hazards

| Marine pollutant | Yes Symbol (fish and tree) |
| Special Marking (ADR) | Symbol (fish and tree) |
| Special Marking (IATA) | Symbol (fish and tree) |

#### 14.6 Special precautions for user

**Warning:** Miscellaneous dangerous substances and articles.

| Danger code (Kemler) | 90 |
14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable.

Transport/Additional information

ADR
Limited quantities (LQ) 5 kg
Transport category 3
Tunnel restriction code E
UN "Model Regulation" UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (thiram), 9, III

15. REGULATORY INFORMATION

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

United States (USA)

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARA Section 355 (extremely hazardous substances)</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>SARA Section 313 (Specific toxic chemical listings)</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>TSCA (Toxic Substances Control Act)</td>
<td>Substance is listed.</td>
</tr>
<tr>
<td>Proposition 65 (California)</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Chemicals known to cause cancer</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Chemicals known to cause reproductive toxicity for females</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Chemicals known to cause reproductive toxicity for males</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Chemicals known to cause developmental toxicity</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Carcinogenic Categories</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>EPA (Environmental Protection Agency)</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>IARC (International Agency for Research on Cancer)</td>
<td>97-77-8 disulfiram 3</td>
</tr>
<tr>
<td>TLV (Threshold Limit Value established by ACGIH)</td>
<td>97-77-8 disulfiram A4</td>
</tr>
<tr>
<td>NIOSH-Ca (National Institute for Occupational Safety and Health)</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>OSHA-Ca (Occupational Safety &amp; Health Administration)</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Canada</td>
<td></td>
</tr>
<tr>
<td>Canadian Domestic Substances List (DSL)</td>
<td>Substance is listed.</td>
</tr>
<tr>
<td>Canadian Ingredient Disclosure list (limit 0.1%)</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Canadian Ingredient Disclosure list (limit 1%)</td>
<td>Substance is listed.</td>
</tr>
</tbody>
</table>

15.2 Chemical safety assessment: A Chemical Safety Assessment has not 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.

Abbreviations and acronyms:
- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation
- IATA: International Air Transport Association
- GHS: Globally Harmonized System of Classification and Labeling of Chemicals
- ACGIH: American Conference of Governmental Industrial Hygienists
- EINECS: European Inventory of Existing Commercial Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- NFPA: National Fire Protection Association (USA)
- HMIS: Hazardous Materials Identification System (USA)
- WHMIS: Workplace Hazardous Materials Information System (Canada)
- DNEL: Derived No-Effect Level (REACH)
- PNEC: Predicted No-Effect Concentration (REACH)
Sources
SDS Prepared by
ChemTel Inc.
1305 North Florida Avenue
Tampa, Florida USA 33602-2902
Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573
Website: www.chemtelinc.com