1. Identification of the Substance/Preparation and of the Company/Undertaking

- **Product identifier**
  - **Product name**: Spotrete™ F
  - **EPA Reg. No.**: 45728-26-1001

- **Other means of identification**
  - **Product code**: 51197
  - **UN-No**: UN3082
  - **Synonyms**: None

- **Recommended use of the chemical and restrictions on use**
  - **Recommended use**: Fungicide.
  - **Uses advised against**: No information available

Details of the Supplier of the Safety Data Sheet

- **Supplier Address**
  - Nufarm Americas, Inc.
  - 11901 S. Austin Avenue
  - Alsip, IL 60803

- **Emergency telephone number**
  - Emergency Telephone
    - For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, Call CHEMTREC Day or Night: 1-800-424-9300
    - For Medical Emergencies Only, Call 1-877-325-1840

2. Hazards Identification

**Classification**

- **OSHA Regulatory Status**
  - This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

  - **Acute toxicity - Oral**: Category 4
  - **Acute toxicity - Inhalation (Vapors)**: Category 3
  - **Serious eye damage/eye irritation**: Category 2A
  - **Specific target organ toxicity (repeated exposure)**: Category 2

**Label Elements**

- **Symbols/Pictograms**
- **Signal Word**
  - **WARNING**
hazard statements
Harmful if inhaled
Harmful if swallowed
Causes serious eye irritation
Causes skin irritation
May cause an allergic skin reaction
May cause damage to organs through prolonged or repeated exposure

Precautionary Statement - Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/eye protection/face protection
Contaminated work clothing should not be allowed out of the workplace
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area

Precautionary Statements - Response
Get medical advice/attention if you feel unwell
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
If on skin: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. If skin irritation occurs: Get medical advice/attention
If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing
If swallowed: Call a Poison Center or doctor/physician if you feel unwell
Rinse mouth
Collect spillage

Precautionary Statements - Disposal
Dispose of contents/container in accordance with local regulation

Hazards Not Otherwise Classified (HNOC)
Not Applicable

3. Composition/information on Ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>Trade secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thiram</td>
<td>137-26-8</td>
<td>44</td>
<td>No</td>
</tr>
</tbody>
</table>

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. First aid measures

First Aid Measures

General advice
If symptoms persist, call a physician. Show this safety data sheet to the doctor in attendance. Use of alcoholic beverages may enhance toxic effects. In case of allergic reaction after exposure, any future exposure must be avoided.

Eye contact
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Remove contact lenses. If eye irritation persists, consult a specialist.

Skin contact
Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician. Wash contaminated clothing before re-use. Thoroughly clean shoes before reuse.
Inhalation
Move to fresh air. Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Consult a physician.

Ingestion
Clean mouth with water and afterwards drink plenty of water. Treat symptomatically. If swallowed, seek medical advice immediately and show this container or label. Loosen tight clothing such as collar, tie, belt and waistband.

Protection of First-aiders
Use personal protective equipment.

Most Important Symptoms and Effects, Both Acute and Delayed
Harmful by inhalation and if swallowed. Irritating to eyes, respiratory system and skin. May cause sensitization by skin contact. Harmful: danger of serious damage to health by prolonged exposure if swallowed. Use of alcoholic beverages may enhance toxic effects.

Indication of Any Immediate Medical Attention and Special Treatment Needed
General advice for dithiocarbamates. Biomonitoring possible at chronic exposure: determination of TTCA in the urine at the end of the workday/week. Bloodtesting for delayed effects: liver tests, kidney function, thyroid function.

5. Fire-fighting measures

Suitable extinguishing media

Unsuitable extinguishing media
No information available.

Specific hazards arising from the chemical

Explosion data
Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH (approved or equivalent) and full protective gear.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Avoid contact with skin, eyes and clothing. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Wear protective gloves/clothing and eye/face protection. Wear respiratory protection. Avoid dust formation. Remove all sources of ignition.

Environmental Precautions
Remove immediately adhering matter. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system.

Methods and material for containment and cleaning up
Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Do not flush with water.

7. Handling and Storage
Precautions for Safe Handling

Use only in area provided with appropriate exhaust ventilation. Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Do not breathe vapours/dust. Use only in an area equipped with a safety shower. Ensure that eyewash stations and safety showers are close to the workstation location. Do not eat, drink or smoke when using this product. Wash hands after handling. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities


incompatible materials

Strong acids. Oxidizing agents.

Control Parameters

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thiram 137-26-8</td>
<td>TWA: 0.05 mg/m³ Inhalable fraction and vapor.</td>
<td>5 mg/m³ TWA</td>
<td>100 mg/m³</td>
</tr>
</tbody>
</table>

Appropriate Engineering Controls

Local exhaust. Avoid dust formation.

Individual protection measures, such as personal protective equipment

Eye/Face Protection

Tightly fitting safety goggles. Face-shield.

Skin and Body Protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place. Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection

If irritation is experienced, NIOSH approved respiratory protection should be worn. Respiratory protection must be provided in accordance with current local regulations.

General hygiene considerations

When using, do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing.

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical appearance</td>
<td>liquid</td>
<td></td>
</tr>
<tr>
<td>color</td>
<td>white liquid</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>6.5 (1% solution)</td>
<td>@ 20 °C / 68 °F</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No Data Available</td>
<td></td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td></td>
<td></td>
</tr>
<tr>
<td>flash point</td>
<td></td>
<td></td>
</tr>
<tr>
<td>evaporation rate</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>flammability (solid, gas)</td>
<td>not auto-flammable</td>
<td></td>
</tr>
<tr>
<td>Flammability limit in air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit</td>
<td>No Information available</td>
<td></td>
</tr>
<tr>
<td>Lower flammability limit</td>
<td>No Information available</td>
<td></td>
</tr>
<tr>
<td>Vapour Pressure Value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vapor density</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>
Specific gravity: No information available
Water solubility: No information available
Solubility in Other Solvents: No information available
Partition coefficient: No Data Available
Autoignition temperature: No information available
de decomposition temperature: No information available
Kinematic viscosity: No information available
Dynamic viscosity: No information available
Explosive properties: No information available
Oxidizing properties: None

**OTHER INFORMATION**

molecular weight: No information available
VOC Content: No information available
density: 1.155 g/ml @ 20 °C / 68 °F

---

**10. Stability and Reactivity**

**Reactivity**
See Incompatible Materials

**Chemical stability**
Hazardous polymerisation does not occur.

**Possibility of Hazardous Reactions**
Possibility of hazardous reactions. See Incompatible Materials.

**Hazardous polymerization**
Hazardous polymerization does not occur.

**Conditions to avoid**
Burning produces obnoxious and toxic fumes.

**incompatible materials**
Strong acids. Oxidizing agents.

**Hazardous decomposition products**
Heating or fire can release toxic gas. Carbon oxides. Nitrogen oxides (NOx). Sulphur oxides. sulphides.

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**11. Toxicological Information**

**Inhalation**
Harmful by inhalation.

**Eye contact**
Irritating to eyes.

**Skin contact**
Avoid contact with skin. May cause sensitization by skin contact.

**Ingestion**
Harmful if swallowed.

**Symptoms related to the physical, chemical and toxicological characteristics**
Harmful by inhalation
Harmful if swallowed
Irritating to eyes
Sensitizer, Skin

**Product information**

LD50/oral/rat = 1800 mg/kg
LD50/dermal/rabbit = > 2000 mg/kg
LC50/inhalation/4h/rat = 3.46 mg/l
Eye irritation: Irritating to eyes
Skin irritation: Non-irritating to the skin
Mutagenic effects: May cause sensitization by skin contact
Reproductive Toxicity: Did not show mutagenic effects in animal experiments
Carcinogenic effects: Did not show carcinogenic effects in animal experiments
Specific target organ systemic toxicity (single exposure): No information available
Specific target organ systemic toxicity (repeated exposure): No information available

Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thiram 137-26-8</td>
<td>Not Listed</td>
<td>Group 3</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

Target organ effects: Kidney, liver, Thyroid.

12. Ecological Information

Marine pollutant: yes.

Ecotoxicity

Product information

Toxicity to Fish

<table>
<thead>
<tr>
<th>Product information</th>
<th>Chemical name</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thiram 137-26-8</td>
<td>0.1: 96 h Desmodesmus subspicatus mg/L EC50</td>
<td>0.0003: 96 h Cyprinus carpio mg/L LC50 semi-static 0.13: 96 h Lepomis macrochirus mg/L LC50 0.034 - 0.0505: 96 h Lepomis macrochirus mg/L LC50 static 0.048: 96 h Oncorhynchus mykiss mg/L LC50 0.0024 - 0.00028: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 0.090 - 0.170: 96 h Oncorhynchus mykiss mg/L LC50 static 0.27: 96 h Pimephales promelas mg/L LC50 0.0491 - 0.0611: 96 h Pimephales promelas nM LC50 semi-static 0.22 - 0.33: 96 h Poecilia reticulata mg/L LC50 semi-static 1.2: 96 h Leuciscus idus mg/L LC50 static 0.021: 48 h Daphnia magna mg/L EC50 0.21: 48 h Daphnia magna mg/L EC50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistence/Degradability: Not readily biodegradable.

Bioaccumulative potential:

Mobility in Soil

Koc = 2245 - 24526

Other Adverse Effects: None known based on information supplied
13. Disposal Considerations

Waste Treatment Methods

Waste Disposal Method

Pesticide wastes are toxic. Improper disposal of excess pesticide spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional office for guidance.

Contaminated packaging

Container Handling (2.5 gallon containers): Non-refillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Offer for recycling, if available. Container Handling (266 gallon totes): Non-refillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Offer for recycling, if available.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>RCRA</th>
<th>RCRA - Basis for Listing</th>
<th>RCRA - D Series Wastes</th>
<th>RCRA - U Series Wastes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thiram 137-26-8</td>
<td>waste number U244</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

14. Transport Information

DOT

Shipping Description
UN 3082, Environmentally Hazardous Substance, Liquid, n.o.s. (Thiram), 9, PG III, RQ

UN-No
UN3082

Hazard class
9

Packing group
PG III

Reportable Quantity (RQ) 10 lbs (4.54 kg).

Marine pollutant
yes.

IATA

UN-No
UN3082

Proper shipping name
Environmentally hazardous substance, liquid, n.o.s (thiram)

Hazard class
9

Packing group
III

Marine pollutant
yes

IMDG/IMO

UN-No
UN3082

Proper shipping name
Environmentally hazardous substance, liquid, n.o.s (thiram)

Hazard class
9

Packing group
III

Marine pollutant
yes

15. Regulatory Information

International Inventories

TSCA
Complies
DSL/NDSL            Complies
EINECS/ELINCS       Complies
ENCS                Complies
IECSC               Complies
KECL                Complies
PICCS               Complies
AICS                Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

Federal Regulations

SARA TITLE III SECTION 313 INFORMATION:
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

SARA 311/312 Hazardous
Categorization
Acute health hazard    Yes
Chronic health hazard  Yes
Fire hazard            No
Sudden release of pressure hazard No
Reactive Hazard        No

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>RQ</th>
<th>CERCLA/SARA RQ</th>
<th>RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thiram 137-26-8</td>
<td>10 lbs</td>
<td>-</td>
<td>RQ= 10lb final RQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RQ= 4.54kg final RQ</td>
</tr>
</tbody>
</table>

State Regulations

California Proposition 65
No Data Available

State Right-to-Know

U.S. EPA Label information
EPA Pesticide registration number  45728-26
EPA Statement
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:
Difference between SDS and EPA pesticide label

HAZARDS TO HUMANS AND DOMESTIC ANIMALS CAUTION
Harmful if swallowed. Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing. Harmful if inhaled. Causes moderate eye irritation. Avoid breathing spray mist or vapor. Do not take alcohol immediately before or after exposure to this product. The consumption of alcohol by the applicator can increase the toxicity of the product. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.
Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.
Remove and wash contaminated clothing before reuse.

WHMIS Hazard Class

D2B  Toxic materials

CANADA

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR

16. Other Information

<table>
<thead>
<tr>
<th>NFPA HEALTH</th>
<th>FIRE</th>
<th>Instability</th>
<th>Physical hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEALTH 2</td>
<td>1</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>flammability 1</td>
<td>1</td>
<td>0</td>
<td>Physical hazards 0</td>
</tr>
</tbody>
</table>

Revision date 05-31-2015
Revision Summary Not Available
Disclaimer:

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet

Spotrete is a trademark of Cleary Chemicals, LLC