



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

### Product identifier

**Product name** SIGNET® 480 FS Seed Treatment  
**Synonyms** Thiram, Tetramethylthiuram Disulfide  
**Product type** Fungicide.

### 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

In case of Chemical Emergency call CHEMTREC 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

Chemical name	CAS-No	Weight %	Trade secret
Thiram	137-26-8	44	No

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

### 4. 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.

<b>Inhalation</b>	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.
<b>Ingestion</b>	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.
<b>Protection of First-aiders</b>	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**

Water spray. Dry chemical. Carbon dioxide (CO<sub>2</sub>). Alcohol-resistant foam.

**Unsuitable extinguishing media**

No information available.

**Specific hazards arising from the chemical**

Danger of dust explosions. Thermal decomposition can lead to release of irritating and toxic gases and vapors. ∴ Carbon disulfide. Nitrogen oxides (NO<sub>x</sub>). Sulphur oxides. Carbon oxides.

**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**

Keep in a dry, cool place. Do not store near acids. Do not store together with oxidizing and self-igniting products. Keep away from heat and sources of ignition. Keep away from direct sunlight. Keep container tightly closed.

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

## 8. Exposure Controls/Personal Protection

**Control Parameters**

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

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Thiram 137-26-8	TWA: 0.05 mg/m <sup>3</sup> Inhalable fraction and vapor.	5 mg/m <sup>3</sup> TWA	100 mg/m <sup>3</sup>

**Appropriate Engineering Controls**

Local exhaust. Avoid dust formation.

**Individual protection measures, such as personal protective equipment**

<b>Eye/Face Protection</b>	Tightly fitting safety goggles. Face-shield.
<b>Skin and Body Protection</b>	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.
<b>Respiratory protection</b>	If irritation is experienced, NIOSH approved respiratory protection should be worn. Respiratory protection must be provided in accordance with current local regulations.
<b>General hygiene considerations</b>	When using, do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing.

## 9. Physical and Chemical Properties

**Information on basic physical and chemical properties**

<b>Physical state</b>	liquid	<b>Odor</b>	None
<b>appearance</b>	white liquid		
<b>color</b>	white		

<b><u>Property</u></b>	<b><u>VALUES</u></b>	<b><u>Remarks • Method</u></b>
<b>pH</b>	6.5 (1% solution)	@ 20 °C / 68 °F
<b>Melting point/freezing point</b>	No Data Available	
<b>Boiling Point/Range</b>		
<b>flash point</b>		
<b>evaporation rate</b>	No information available	
<b>flammability (solid, gas)</b>	not auto-flammable	
<b>Flammability limit in air</b>		
<b>Upper flammability limit:</b>	No Information available	
<b>Lower flammability limit:</b>	No Information available	
<b>Vapour Pressure Value</b>	no data available	
<b>vapor density</b>	No information available	

<b>Specific gravity</b>	No information available
<b>Water solubility</b>	No information available
<b>Solubility in Other Solvents</b>	No information available
<b>Partition coefficient</b>	No Data Available .
<b>Autoignition temperature</b>	No information available
<b>decomposition temperature</b>	No information available
<b>Kinematic viscosity</b>	No information available
<b>Dynamic viscosity</b>	No information available
<b>Explosive properties</b>	No information available
<b>Oxidizing properties</b>	None

**OTHER INFORMATION**

<b>molecular weight</b>	No information available
<b>VOC Content</b>	No information available
<b>density</b>	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.

**11. Toxicological Information**

<b>Inhalation</b>	Harmful by inhalation.
<b>Eye contact</b>	Irritating to eyes.
<b>Skin contact</b>	Avoid contact with skin. May cause sensitization by skin contact.
<b>Ingestion</b>	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**

<b>LD50/oral/rat =</b>	1800 mg/kg
<b>LD50/dermal/rabbit =</b>	> 2000 mg/kg
<b>LC50/inhalation/4h/rat =</b>	3.46 mg/l

<b>Eye irritation</b>	Irritating to eyes
<b>Skin irritation</b>	Non-irritating to the skin
<b>sensitization</b>	May cause sensitization by skin contact
<b>Mutagenic effects</b>	Did not show mutagenic effects in animal experiments
<b>Reproductive Toxicity</b>	Did not show teratogenic effects in animal experiments
<b>Carcinogenic effects</b>	Did not show carcinogenic effects in animal experiments
<b>Specific target organ systemic toxicity (single exposure)</b>	No information available
<b>Specific target organ systemic toxicity (repeated exposure)</b>	No information available

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

Chemical name	ACGIH	IARC	NTP	OSHA
Thiram 137-26-8	Not Listed	Group 3	Not Listed	Not Listed

**Target organ effects** kidney, liver, Thyroid.

## 12. Ecological Information

**Marine pollutant** yes.

### Ecotoxicity

#### Product information

<b>Toxicity to Fish</b>	LC50 : 0.046 - 1.2 mg/l
<b>EC50/48h/daphnia =</b>	0.011 mg/l
<b>EC50/120h/algae =</b>	0.24 mg/l
<b>EC50 / Tox Bacteria</b>	IC50 : 3.11 mg/l

Chemical name	Freshwater Algae	Freshwater Fish	Water Flea
Thiram 137-26-8	0.1: 96 h Desmodesmus subspicatus mg/L EC50	0.0003: 96 h Cyprinus carpio mg/L LC50 semi-static 0.13: 96 h Lepomis macrochirus mg/L LC50 0.034 - 0.05005: 96 h Lepomis macrochirus mg/L LC50 static 0.048: 96 h Oncorhynchus mykiss mg/L LC50 0.00024 - 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	0.21: 48 h Daphnia magna mg/L EC50

### Persistence/Degradability

NOT READILY BIODEGRADABLE.

### Bioaccumulative potential

#### Mobility in Soil

**Koc** = 2245 - 24526

Chemical name	Log Pow
Thiram 137-26-8	1.84

### 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.

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Thiram 137-26-8	waste number U244	-	-	-

### 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

Chemical name	RQ	CERCLA/SARA RQ	RQ
Thiram 137-26-8	10 lbs	-	RQ= 10lb final RQ RQ= 4.54kg final RQ

**State Regulations****California Proposition 65**

No Data Available

**State Right-to-Know****U.S. EPA Label information**

**EPA Pesticide registration number** 45728-26-55146

**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. Spotrete™

**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				
<u>NFPA</u>	HEALTH 2	FIRE 1	Instability 0	Physical hazard -
<u>HMIS</u>	HEALTH 2	flammability 1	Physical hazards 0	
Revision date	05-31-2015			
Revision Summary	Not Available			
<u>Disclaimer:</u>				
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				