



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.

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**

Water spray. Dry chemical. Carbon dioxide (CO₂). 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_x). 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 ³ Inhalable fraction and vapor.	5 mg/m ³ TWA	100 mg/m ³

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.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state	liquid	Odor	None
appearance	white liquid		
color	white		

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

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
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.

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
sensitization	May cause sensitization by skin contact
Mutagenic effects	Did not show mutagenic effects in animal experiments
Reproductive Toxicity	Did not show teratogenic 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.

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

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