

Preparation Date no data available

Revision date 07-15-2015

Revision number 1.01

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

### Product identifier

**Product name** Defiant® Turf Fungicide and Animal Repellant

### Other means of identification

**Product code** 51031E  
**UN-No** UN3077  
**Synonyms** Thiram  
**Registration number(s)** EPA Reg. No. 45728-21

### 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

Taminco US Inc.  
 A subsidiary of Eastman Chemical Company  
 Two Windsor Plaza, Suite 411  
 7540 Windsor Drive  
 Allentown, PA USA 18195  
 T: +(800) 223-3258

### Emergency telephone number

Emergency Telephone

In case of emergency call CHEMTREC 1-800-424-9300  
 for International calls 1-703-527-3887

## 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 (Dusts/Mists)	Category 4
Serious eye damage/eye irritation	Category 2B
Skin sensitization	Category 1
Specific target organ toxicity (repeated exposure)	Category 2

### Label Elements

#### Symbols/Pictograms



**Signal Word****WARNING****hazard statements**

Harmful if inhaled  
 Harmful if swallowed  
 May cause an allergic skin reaction  
 May cause damage to organs through prolonged or repeated exposure  
 Causes eye irritation  
 May form combustible dust concentrations in air

**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

**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 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

**Precautionary Statements - Disposal**

Dispose of contents/container in accordance with local regulation

**Hazards Not Otherwise Classified (HNOC)**

Not Applicable

### 3. Composition/information on Ingredients

**Synonyms** Thiram.

Chemical name	CAS-No	Weight %	Trade secret
Thiram	137-26-8	75	No

\*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**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. 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>	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. Obtain medical attention.
<b>Ingestion</b>	Clean mouth with water and afterwards drink plenty of water. Do NOT induce vomiting. 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**

See Section 11: TOXICOLOGICAL INFORMATION.

**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**

Carbon dioxide (CO<sub>2</sub>). Water spray. Dry chemical. 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.

**Hazardous combustion products** Carbon oxides. Nitrogen oxides (NO<sub>x</sub>). Carbon disulfide. Sulphur 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. 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**

Use explosion-proof equipment. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Large spills should be collected mechanically (remove by pumping) for disposal. Keep in suitable, closed containers for disposal. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

Do not flush with water. Avoid dust formation. Use a suitable vacuum cleaner. Vacuum or sweep material and place in a disposal container.

## 7. Handling and Storage

**Precautions for Safe Handling**

Take measures to prevent the build up of electrostatic charge. Use only in area provided with appropriate exhaust ventilation. Use spark-proof tools and explosion-proof equipment. Avoid dust formation. 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 container tightly closed.

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

**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>

*IDLH: Immediately Dangerous to Life or Health*

**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**

<b>Physical state</b>	solid	<b>Odor</b>	Characteristic
<b>appearance</b>	No information available		
<b>color</b>	white to light brown		

<u>Property</u>	<u>VALUES</u>	<u>Remarks • Method</u>
<b>pH</b>	8.9 (4% solution)	
<b>Melting point/freezing point</b>	No information available	
<b>Boiling Point/Range</b>		
<b>flash point</b>	No information available	
<b>evaporation rate</b>	Not applicable	
<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>	Not applicable
<b>vapor density</b>	
<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>	Log Pow : 1.84
<b>Autoignition temperature</b>	235 °C
<b>decomposition temperature</b>	No information available
<b>Kinematic viscosity</b>	No information available Not Applicable
<b>Dynamic viscosity</b>	No information available
<b>Explosive properties</b>	Dust can form an explosive mixture with air
<b>Oxidizing properties</b>	None

**OTHER INFORMATION**

<b>molecular weight</b>	No information available
<b>VOC Content</b>	No information available
<b>density</b>	0.60 g/cm3

## 10. Stability and Reactivity

**Reactivity**

See Incompatible Materials

**Chemical stability**

Hazardous polymerisation does not occur.

**Possibility of Hazardous Reactions**

See Incompatible Materials.

**Hazardous polymerization**

Hazardous polymerization does not occur.

**Conditions to avoid**

Avoid dust formation. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges.

**incompatible materials**

Oxidizing agents. Strong acids.

**Hazardous decomposition products**

Combustible material. Burning produces irritant fumes. Heating or fire can release toxic gas. Carbon oxides. Nitrogen oxides (NOx). Sulphur oxides.

## 11. Toxicological Information

**Symptoms related to the physical, chemical and toxicological characteristics**

Product dust may be irritating to eyes, skin and respiratory system harmful by inhalation and if swallowed.  
Irritating to eyes

**Product information**

<b>LD50/oral/rat =</b>	1407 mg/kg
<b>LD50/dermal/rat =</b>	> 2000 mg/kg
<b>Inhalation</b>	It was demonstrated that during intended and foreseen applications, no respirable aerosol is formed

<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.

Component	ACGIH	IARC	NTP	OSHA
Thiram 137-26-8 ( 75 )	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 - 1.20 mg/l
<b>LC50/48h/daphnia =</b>	> 0.2 mg/l
<b>EC50/120h/algae =</b>	> 0.14 mg/l
<b>Toxicity to bacteria</b>	IC50 : 3.11 mg/l (3 h)

#### 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: Do not reuse or refill this container. Completely empty bag into application equipment. Dispose of empty bag in a sanitary landfill or by incineration or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

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**

<b>Shipping Description</b>	UN3077, Environmentally Hazardous Substance, Solid, N.O.S. (Thiram), 9, PG III, RQ, MP
<b>UN-No</b>	UN3077
<b>Hazard class</b>	9
<b>Packing group</b>	PGIII
<b>Marine pollutant</b>	yes.

**IATA**

<b>UN-No</b>	UN3077
<b>Proper shipping name</b>	Environmentally hazardous substance, solid, n.o.s (thiram)
<b>Hazard class</b>	9
<b>Packing group</b>	III
<b>Marine pollutant</b>	yes

**IMDG/IMO**

<b>UN-No</b>	UN3077
<b>Proper shipping name</b>	Environmentally hazardous substance, solid, n.o.s (thiram)
<b>Hazard class</b>	9
<b>Packing group</b>	III
<b>Marine pollutant</b>	yes

## 15. Regulatory Information

**International Inventories**

<b>TSCA</b>	Complies
<b>DSL/NDSL</b>	Complies
<b>EINECS/ELINCS</b>	Complies
<b>ENCS</b>	Complies
<b>IECSC</b>	Complies
<b>KECL</b>	Complies
<b>PICCS</b>	Complies
<b>AICS</b>	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**

<b>Acute health hazard</b>	No
<b>Chronic health hazard</b>	No
<b>Fire hazard</b>	No
<b>Sudden release of pressure hazard</b>	No
<b>Reactive Hazard</b>	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**

Chemical name	NJ	Ma	Pa
Thiram 137-26-8	X	X	X

**U.S. EPA Label information**

EPA Pesticide registration number 45728-21\*\*\*

**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**

Consumption of alcoholic beverages increases the toxic effect of Thiram.

**EPA Pesticide label**

ENVIRONMENTAL HAZARDS: This pesticide is toxic to fish, aquatic invertebrates, oysters and shrimps. Do not discharge effluent

containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of

a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge.

**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****NFPA**

HEALTH 2

FIRE 1

Instability 0

Physical hazard -

**HMIS**

HEALTH 2

flammability 1

Physical hazards 0

Revision date

07-15-2015

**Revision Summary**

Not Available

**Disclaimer:**

The information provided in 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text.

End of Safety Data Sheet