SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier
Trade name 42-S THIRAM FUNGICIDE
Product code (UVP) 80993358
SDS Number 102000026992
EPA Registration No. 264-929

Relevant identified uses of the substance or mixture and uses advised against
Use Fungicide, Repellent, Seed treatment
Restrictions on use See product label for restrictions.

Information on manufacturer
Bayer CropScience
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
United States

Emergency telephone no.
Emergency Telephone Number (24hr/7 days) 1-800-334-7577
Product Information Telephone Number 1-866-99BAYER (1-866-992-2937)
SDS Information or Request SDSINFO.BCS-NA@bayer.com

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200
Specific target organ toxicity - repeated exposure: Category 2
Acute toxicity (Inhalation): Category 4

Signal word: Warning

Hazard statements
May cause damage to organs (liver) through prolonged or repeated exposure.
Harmful if inhaled.

Precautionary statements
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Use only outdoors or in a well-ventilated area.
Get medical advice/attention if you feel unwell.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Dispose of contents/container in accordance with local regulation.

Other hazards
No other hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Component Name</th>
<th>CAS-No.</th>
<th>Concentration % by weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thiram</td>
<td>137-26-8</td>
<td>42.00</td>
</tr>
<tr>
<td>1,2-Propanediol</td>
<td>57-55-6</td>
<td>10.00</td>
</tr>
<tr>
<td>Urea</td>
<td>57-13-6</td>
<td>1.00</td>
</tr>
</tbody>
</table>

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice
When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Inhalation
Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

Skin contact
Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.

Eye contact
Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.

Ingestion
Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed
Symptoms
Prolonged and repeated contact with skin, eyes or mucous membranes may cause irritation.

Indication of any immediate medical attention and special treatment needed
Treatment
Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.
SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable None known.

Special hazards arising from the substance or mixture

Dangerous gases are evolved in the event of a fire.

Advice for firefighters

Special protective equipment for fire-fighters Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Further information

Evacuate personnel to safe areas. Avoid contact with spilled product or contaminated surfaces. Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses. Whenever possible, contain fire-fighting water by diking area with sand or earth.

Flash point > 93.4 °C

Autoignition temperature no data available

Lower explosion limit no data available

Upper explosion limit no data available

Explosivity not applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces. Do not breathe vapour. Remove all sources of ignition.

Methods and materials for containment and cleaning up

Methods for cleaning up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional advice Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal. Do not allow product to contact non-target plants.

Reference to other sections Information regarding safe handling, see section 7.

Information regarding personal protective equipment, see section 8.
SECTION 7: HANDLING AND STORAGE

Precautions for safe handling
Advice on safe handling
Handle and open container in a manner as to prevent spillage. Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation.

Hygiene measures
Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities
Requirements for storage areas and containers
Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area. Protect from freezing.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thiram (Inhalable fraction and vapor.)</td>
<td>137-26-8</td>
<td>0.05 mg/m3 (TWA)</td>
<td>02 2012</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Thiram (Inhalable fraction and vapor.)</td>
<td>137-26-8</td>
<td>0.05 mg/m3 (TWA)</td>
<td>02 2013</td>
<td>ACGIH NIC</td>
</tr>
<tr>
<td>Thiram</td>
<td>137-26-8</td>
<td>5 mg/m3 (REL)</td>
<td>2010</td>
<td>NIOSH</td>
</tr>
<tr>
<td>Thiram</td>
<td>137-26-8</td>
<td>5 mg/m3 (PEL)</td>
<td>02 2006</td>
<td>OSHA Z1</td>
</tr>
<tr>
<td>Thiram</td>
<td>137-26-8</td>
<td>5 mg/m3 (TWA)</td>
<td>1989</td>
<td>OSHA Z1A</td>
</tr>
<tr>
<td>Thiram</td>
<td>137-26-8</td>
<td>5 mg/m3 (TWA)</td>
<td>06 2008</td>
<td>TN OEL</td>
</tr>
<tr>
<td>Thiram</td>
<td>137-26-8</td>
<td>10ug/m3 (ST ESL)</td>
<td>07 2011</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Thiram</td>
<td>137-26-8</td>
<td>1ug/m3 (AN ESL)</td>
<td>07 2011</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Thiram</td>
<td>137-26-8</td>
<td>5 mg/m3</td>
<td>08 2010</td>
<td>US CA OEL</td>
</tr>
</tbody>
</table>
Exposure controls

Personal protective equipment
In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection
When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection
Chemical resistant nitrile rubber gloves

Eye protection
Chemical resistant goggles must be worn.

Skin and body protection
Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures
Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
white to beige
Physical State  Liquid
Odor  characteristic
Odour Threshold  no data available
pH  6.5 - 7.5 at 100 %
Vapor Pressure  no data available
Vapor Density (Air = 1)  no data available
Density  1.17 g/cm³ at 20 °C
Evaporation rate  no data available
Boiling Point  no data available
Melting / Freezing Point  no data available
Water solubility  miscible
Minimum Ignition Energy  not applicable
Decomposition temperature  not applicable
Partition coefficient: n-octanol/water  no data available
Viscosity  600 - 1,000 mPa.s
Flash point  > 93.4 °C
Autoignition temperature  no data available
Lower explosion limit  no data available
Upper explosion limit  no data available
Explosivity  not applicable

SECTION 10: STABILITY AND REACTIVITY

Reactivity
Thermal decomposition  not applicable
Chemical stability  Stable under recommended storage conditions.
Possibility of hazardous reactions  No dangerous reaction known under conditions of normal use.
Conditions to avoid  Heat, flames and sparks. freezing
Incompatible materials  Copper, Oxidizing agents, Strong acids
Hazardous decomposition products  No decomposition products expected under normal conditions of use.
SECTION 11: TOXICOLOGICAL INFORMATION

**Exposure routes**
- Inhalation, Ingestion, Skin Absorption, Eye contact

**Immediate Effects**
- Skin: Harmful if absorbed through skin.
- Ingestion: Harmful if swallowed.
- Inhalation: Harmful if inhaled.

**Information on toxicological effects**

**Acute oral toxicity**
- LD50 (male/female combined rat) 3,580 mg/kg

**Acute inhalation toxicity**
- LC50 (male/female combined rat) > 2.6 mg/l
  - Exposure time: 4 h
  - Determined in the form of a respirable aerosol.
- LC50 (male/female combined rat) > 10.4 mg/l
  - Exposure time: 1 h
  - Determined in the form of a respirable aerosol.
  - Extrapolated from the 4 hr LC50.

**Acute dermal toxicity**
- LD50 (rat) > 4,000 mg/kg

**Skin irritation**
- Slight irritation (rabbit)

**Eye irritation**
- Slight irritation (rabbit)

**Sensitisation**
- May cause sensitisation by skin contact.

**Assessment repeated dose toxicity**
Thiram caused specific target organ toxicity in experimental animal studies in the following organ(s):
- liver, forestomach.

**Assessment Mutagenicity**
Thiram was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

**Assessment Carcinogenicity**
Thiram was not carcinogenic in lifetime feeding studies in rats and mice.

**ACGIH**
- Thiram 137-26-8 Group A4

**NTP**
- None.

**IARC**
- Thiram 137-26-8 Overall evaluation: 3

**OSHA**
- None.
Assessment toxicity to reproduction
Thiram did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity
Thiram caused developmental toxicity only at dose levels toxic to the dams.

Further information
Only acute toxicity studies have been performed on the formulated product. The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish
LC50 (Fish)  0.046 - 1.20 mg/l  
The value mentioned relates to the active ingredient thiram.

Toxicity to aquatic invertebrates
LC50 (Daphnia)  > 0.2 mg/l  
Exposure time: 48 h  
The value mentioned relates to the active ingredient thiram.

Toxicity to aquatic plants
EC50 (Algae)  0.14 mg/l  
Exposure time: 120 h  
The value mentioned relates to the active ingredient thiram.

Biodegradability
Thiram: not rapidly biodegradable

Koc
Thiram: Koc: 2245 - 24526

Bioaccumulation
Thiram: Bioconcentration factor (BCF) 3.9

Mobility in soil
Thiram: Immobile in soil

Environmental precautions
Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent sites. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods
Product
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.
Open dumping is prohibited.
Follow advice on product label and/or leaflet.

**Contaminated packaging**
- Do not re-use empty containers.
- Triple rinse containers.
- Puncture container to avoid re-use.
- Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning.
- If burned, stay out of smoke.

**RCRA Information**
Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.

**SECTION 14: TRANSPORT INFORMATION**

### 49CFR
- **UN number**: 3082
- **Class**: 9
- **Packaging group**: III
- **Marine pollutant**: Marine pollutant
- **Proper shipping name**: ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (THIRAM)
- **RQ**: Reportable Quantity is reached with 23 lb of product.

### IMDG
- **UN number**: 3082
- **Class**: 9
- **Packaging group**: III
- **Marine pollutant**: YES
- **Proper shipping name**: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (THIRAM SOLUTION)

### IATA
- **UN number**: 3082
- **Class**: 9
- **Packaging group**: III
- **Environn. Hazardous Mark**: YES
- **Proper shipping name**: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (THIRAM SOLUTION )

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.
SECTION 15: REGULATORY INFORMATION

EPA Registration No. 264-929
US Federal Regulations
TSCA list
Thiram 137-26-8
1,2-Propanediol 57-55-6
Urea 57-13-6
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
None.
SARA Title III - Section 302 - Notification and Information
None.
SARA Title III - Section 313 - Toxic Chemical Release Reporting
Thiram 137-26-8 1.0%
US States Regulatory Reporting
CA Prop65
This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients
Thiram 137-26-8 CA, CT, IL, MN, NJ, RI
1,2-Propanediol 57-55-6 MN
Urea 57-13-6 MN

Canadian Regulations
Canadian Domestic Substance List
None.

Environmental
CERCLA
Thiram 137-26-8 10 lbs
Clean Water Section 307 Priority Pollutants
None.
Safe Drinking Water Act Maximum Contaminant Levels
None.

EPA/FIFRA Information:
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 required on the pesticide label:
Signal word: Caution!

Hazard statements: Harmful if swallowed.
Harmful if absorbed through skin.
Harmful if inhaled.
Avoid contact with skin, eyes and clothing.
Avoid inhalation of vapour or mist.
Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

SECTION 16: OTHER INFORMATION

NFPA 704 (National Fire Protection Association):
Health - 2 Flammability - 1 Instability - 1 Others - none

Health - 2 Flammability - 1 Physical Hazard - 1 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: Revised according to the current OSHA Hazard Communication Standard (29CFR1910.1200)

Revision Date: 09/02/2014

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