

Material Safety Data Sheet

THIRAM 24/7

Version 1.3

MSDS Number: 000000038657

Revision Date: 03/20/2015

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : THIRAM 24/7

Product code : 000000038657

1.3 Details of the supplier of the safety data sheet

Company: MacDermid Agricultural Solutions, Inc
245 Freight St
Waterbury, CT
United States of America
06702
Telephone : +1 800 423 8569

Prepared by Regulatory.Affairs@AgripharCropSolutions.com

Further information for the safety data sheet : Regulatory.Affairs@AgripharCropSolutions.com

1.4 Emergency telephone number

Emergency telephone number: Agriphar Crop Solutions: +1 800 423 8569(24 hours) 800-424-9300
For additional emergency telephone numbers see section 16 of the Safety Data Sheet.

Recommended use of the chemical and restrictions on use

Recommended use : Plant protection agent

Restrictions on use : Agriculture, For professional users only.

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

| | |
|-----------------|--|
| WARNING! | |
| Appearance | liquid |
| Colour | white |
| Odour | No data available |
| Hazard Summary | Harmful if swallowed. Harmful if inhaled. May cause an allergic skin reaction. Causes serious eye irritation. |

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| | |
|--|---|
| | Very toxic to aquatic life with long lasting effects. |
|--|---|

GHS Classification

| | |
|-----------------------------|---------------|
| Acute toxicity (Oral) | : Category 4 |
| Acute toxicity (Inhalation) | : Category 4 |
| Eye irritation | : Category 2A |
| Skin sensitisation | : Category 1 |
| Acute aquatic toxicity | : Category 1 |
| Chronic aquatic toxicity | : Category 1 |

GHS Label element

| | | |
|-------------------|---|---|
| Hazard pictograms | : |  |
|-------------------|---|---|

Signal word : Warning

Hazard statements : H302 + H332 Harmful if swallowed or if inhaled
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear eye protection/ face protection.
P280 Wear protective gloves.
Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.
P391 Collect spillage.
Disposal:
P501 Dispose of contents/ container to an approved waste dis-

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posal plant.

Potential Health Effects

| | |
|------------------------------|---|
| Primary Routes of Entry | : Skin contact Eye contact Inhalation |
| Inhalation | : Harmful if inhaled. |
| Skin | : May irritate skin. May cause allergic skin reaction. |
| Eyes | : Irritating to eyes. |
| Ingestion | : Harmful or fatal if swallowed. |
| Chronic Exposure | : Harmful: danger of serious damage to health by prolonged exposure if swallowed. May cause sensitisation by skin contact. |
| Aggravated Medical Condition | : None known. |
| Symptoms of Overexposure | : Allergic reactions irritant effects |

Carcinogenicity:

| | |
|--------------|---|
| IARC | No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. |
| ACGIH | No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. |
| OSHA | No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. |
| NTP | No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. |

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Hazardous components

| | | |
|--------|----------|------|
| thiram | 137-26-8 | >= < |
|--------|----------|------|

SECTION 4. FIRST AID MEASURES

If inhaled : Remove to fresh air.

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- Obtain medical attention.
- In case of skin contact : Remove contaminated clothing and shoes.
Wash off with warm water and soap.
If symptoms persist, call a physician.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids,
for at least 15 minutes.
Obtain medical attention.
- If swallowed : If victim is fully conscious, give a cupful of water.
Do not induce vomiting without medical advice.
Get medical attention immediately.
Do not give milk, alcoholic beverages or castor oil.
- Most important symptoms and effects, both acute and delayed : Allergic reactions
irritant effects
Harmful if swallowed or if inhaled
May cause an allergic skin reaction.
Causes serious eye irritation.
- Notes to physician : The first aid procedure should be established in consultation
with the doctor responsible for industrial medicine.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Extinguishing media - large fires
Alcohol-resistant foam
(on small fires)
Carbon dioxide (CO₂)
Dry chemical
Water spray
- Unsuitable extinguishing media : Water spray jet
- Specific hazards during fire-fighting : Burning produces noxious and toxic fumes.
Cool closed containers exposed to fire with water spray.
- Specific extinguishing methods :
- Further information : Evacuate personnel to safe areas.
Collect contaminated fire extinguishing water separately. This must
not be discharged into drains.
Avoid dust formation.
In the event of fire, cool tanks with water spray.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Wear suitable protective equipment.
Avoid contact with skin and eyes.

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- Environmental precautions : Should not be released into the environment.
Do not flush into surface water or sanitary sewer system.
Avoid subsoil penetration.
- Methods and materials for containment and cleaning up : Sweep up and shovel.
Pick up and arrange disposal without creating dust.

SECTION 7. HANDLING AND STORAGE

- Advice on safe handling : Use plant protection products safely. Always read the label and product information before use.
Wear suitable protective equipment.
Do not get in eyes or mouth or on skin.
Smoking, eating and drinking should be prohibited in the application area.
Do not use in areas without adequate ventilation.
Avoid formation of dust and aerosols.
- Conditions for safe storage : Store in original container.
Keep in a dry, cool place.
Keep container closed.
Protect from contamination.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

| Components | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|------------|----------|------------------------------------|---|-----------|
| thiram | 137-26-8 | TWA (Inhalable fraction and vapor) | 0.05 mg/m ³ | ACGIH |
| | | TWA | 5 mg/m ³ | OSHA Z-1 |
| | | TWA | 5 mg/m ³ | OSHA P0 |
| | | TWA | 5 mg/m ³ | NIOSH REL |

Personal protective equipment

- Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.
Respirator with a dust filter
- Hand protection
Remarks : Impervious gloves
- Eye protection : Safety glasses with side-shields
- Skin and body protection : impervious clothing
- Hygiene measures : Take precautionary measures against static discharges.
Do not flush into surface water or sanitary sewer system.
Keep away from food, drink and animal feedingstuffs.

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|--|---|
| Appearance | : liquid |
| Colour | : white |
| Odour | : No data available |
| Odour Threshold | : No data available |
| pH | : 5.5 - 7.5, Method: No information available. 1% Solution (as aqueous solution) |
| Melting point/range | : Not applicable |
| Boiling point/boiling range | : No data available |
| Flash point | : not determined |
| Evaporation rate | : No data available |
| Upper explosion limit | : No data available |
| Lower explosion limit | : No data available |
| Vapour pressure | : No data available |
| Relative vapour density | : No data available |
| Relative density | : No data available |
| Density | : 1.11 - 1.21 g/cm ³ (20 °C) |
| Solubility(ies) | |
| Water solubility | : No data available |
| Solubility in other solvents | : No data available |
| Partition coefficient: n-octanol/water | : No data available |
| Auto-ignition temperature | : No data available |
| Thermal decomposition | : No data available |
| Viscosity | |
| Viscosity, dynamic | : No data available |
| Viscosity, kinematic | : No data available |
| Self-Accelerating decomposition temperature (SADT) | : Method: No information available. |
| Oxidising potential | : The substance or mixture is not classified as oxidizing. |

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SECTION 10. STABILITY AND REACTIVITY

- Reactivity : No dangerous reaction known under conditions of normal use.
- Chemical stability : Stable under normal conditions.
- Possibility of hazardous reactions : Hazardous polymerisation does not occur.
- Conditions to avoid : Extremes of temperature and direct sunlight.
- Incompatible materials : Oxidizing agents
Acids
Copper
- Hazardous decomposition products : Carbon oxides
Nitrogen oxides (NO_x)
Sulphur oxides
Other hazardous decomposition products may be formed.

SECTION 11. TOXICOLOGICAL INFORMATION

- Information on likely routes of exposure : Skin contact
Eye contact
Inhalation

Acute toxicity

Product:

- Acute oral toxicity : Acute toxicity estimate : 1,800 mg/kg
Method: Calculation method
- Acute inhalation toxicity : Acute toxicity estimate : 3.46 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Components:

thiram:

- Acute oral toxicity : LD50 (Rat, female): 1,800 mg/kg
- Acute inhalation toxicity : LC50 (Rat, female): 3.46 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
- Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

Skin corrosion/irritation

Components:

thiram:

- Species: Rabbit
Result: No skin irritation

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Serious eye damage/eye irritation

Components:

thiram:

Species: Rabbit

Result: Irritating to eyes.

Assessment: Irritating to eyes.

Respiratory or skin sensitisation

Components:

thiram:

Species: Guinea pig

Assessment: May cause sensitisation by skin contact.

Result: Causes sensitisation.

Germ cell mutagenicity

Components:

thiram:

Genotoxicity in vitro : Test species: Salmonella typhimurium
Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)
Result: positive

Test species: Chinese hamster ovary cells
Result: negative

Test species: Chinese hamster ovary cells
Method: In Vitro mammalian Cell Gene Mutation Test
Result: negative

Genotoxicity in vivo : Test Type: Mammalian bone marrow chromosome aberration test
Test species: Mouse
Result: negative

Germ cell mutagenicity- Assessment : negative

Carcinogenicity

Components:

thiram:

Species: Rat

Application Route: Oral

NOAEL: No observed adverse effect level: 1.5 mg/kg bw/day

Carcinogenicity - Assessment : negative

Reproductive toxicity

Components:

thiram:

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Effects on fertility : Species: Rat
General Toxicity - Parent: No observed adverse effect level:
2.3 mg/kg bw/day
General Toxicity F1: No observed adverse effect level F1: 9
mg/kg bw/day
Early Embryonic Development: No observed adverse effect
level F2: 3 mg/kg bw/day

Effects on foetal develop- : Species: Rabbit
ment General Toxicity Maternal: No observed adverse effect level:
10 mg/kg bw/day
Teratogenicity: No observed adverse effect level: 10 mg/kg
bw/day

Species: Rat
Teratogenicity: No observed adverse effect level: 7.5 mg/kg
bw/day

Reproductive toxicity - As- : negative
sessment negative

STOT - single exposure

STOT - repeated exposure

Repeated dose toxicity

Components:

thiram:

Species: Rat
NOAEL: 2.5 mg/kg
Application Route: Oral
Exposure time: 90 d
Target Organs: Stomach

Species: Rabbit
NOAEL: 300 mg/kg
Application Route: Dermal
Exposure time: 21 d

Species: Dog
NOAEL: 2 mg/kg
Application Route: Oral
Exposure time: 90 d
Target Organs: Liver

Aspiration toxicity

Product:

No aspiration toxicity classification

Further information

Product:

Remarks: Use of alcoholic beverages may enhance toxic effects.

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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Further information

The following percentage of the mixture consists of ingredient(s) with unknown hazards to the aquatic environment: 56 %

Components:

thiram:

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.046 mg/l
Exposure time: 96 h
Test Type: static test
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.011 mg/l
Exposure time: 48 h
Test Type: static test
- Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 0.065 mg/l
Exposure time: 120 h
Test Type: static test
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : (Daphnia magna (Water flea)): 0.008 mg/l
Exposure time: 21 d

Persistence and degradability

Components:

thiram:

- Biodegradability : Result: Not readily biodegradable.

Bioaccumulative potential

Product:

- Bioaccumulation : Remarks: No data available

Components:

thiram:

- Partition coefficient: n-octanol/water : log Pow: 2.1

Mobility in soil

Product:

- Mobility : Remarks: No data available

Other adverse effects

Product:

- Results of PBT and vPvB assessment : No data available

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Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Components:

thiram:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of wastes in an approved waste disposal facility.
The product should not be allowed to enter drains, water courses or the soil.
In accordance with local and national regulations.
Do not contaminate ponds, waterways or ditches with chemical or used container.

Contaminated packaging : Dispose of as unused product.
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulation

IATA-DGR

UN/ID No. : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (thiram)
Class : 9
Packing group : III
Labels : Miscellaneous
Packing instruction (cargo aircraft) : 964
Packing instruction (passenger aircraft) : 964

IMDG-Code

UN number : UN 3077
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (thiram)
Class : 9
Packing group : III
Labels : 9
EmS Code : F-A, S-F
Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

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National Regulations

49 CFR

UN/ID/NA number : UN 3082
Proper shipping name : Environmentally hazardous substances, liquid, n.o.s.
Class : 9
Packing group : III
Labels : Class 9 - Miscellaneous Dangerous Goods
ERG Code : 171
Marine pollutant : yes

Remarks SECTION 15. REGULATORY INFORMATION

OSHA Hazards : This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

| Components | CAS-No. | Component RQ (lbs) | Calculated product RQ (lbs) |
|------------|----------|--------------------|-----------------------------|
| Thiram | 137-26-8 | 10 | 23 |

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Acute Health Hazard
Chronic Health Hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

| | | |
|--------|----------|------|
| thiram | 137-26-8 | 44 % |
|--------|----------|------|

California Prop 65 : This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

The components of this product are reported in the following inventories:

TSCA : On TSCA Inventory
DSL : All components of this product are on the Canadian DSL.
AICS : On the inventory, or in compliance with the inventory
NZIoC : On the inventory, or in compliance with the inventory
ENCS : On the inventory, or in compliance with the inventory
KECI : On the inventory, or in compliance with the inventory
PICCS : On the inventory, or in compliance with the inventory

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IECSC : On the inventory, or in compliance with the inventory

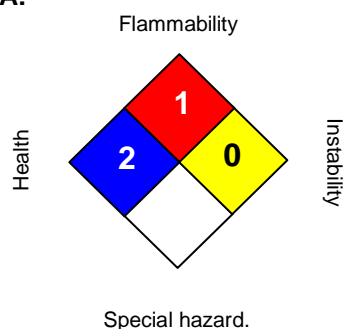
Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA)

SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

| | |
|------------------------|-----------|
| HEALTH | 2* |
| FLAMMABILITY | 1 |
| PHYSICAL HAZARD | |

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

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.

Carechem24 International Worldwide Coverage

Emergency Phone Number

| | | |
|----------------------|--|-------------------------------------|
| <u>Europe:</u> | All European Countries | +44 (0) 1235 239 670 (NCEC) |
| <u>Asia Pacific:</u> | East / South East Asia – Regional Number | +65 3158 1074 |
| | Australia | +61 2801 44558 |
| | New Zealand | +64 9929 1483 |
| | China | +86 532 8388 9090 |
| | China Taiwan | +86 10 5100 3039 |
| | Japan | +81 345 789 341 |
| | Indonesia | 00780 3011 0293 |
| | Malaysia | +60 3 6207 4347 |
| | Thailand | 001800 1 2066 6751 |
| | Korea | +65 3158 1285 +82 (0)234 798 401 |
| | Vietnam | +65 3158 1255 |
| | India | +65 3158 1198 +91 1166 411 405 |
| | Pakistan | +65 3158 1329 |

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| | | |
|------------------------------|---------------------------------------|-----------------------------------|
| | Philippines | +65 31581203 |
| | Sri Lanka | +65 3158 1195 |
| | Bangladesh | +65 3158 1200 |
| <u>Middle East / Africa:</u> | Arabic speaking countries | +44 (0) 1235 239 671 |
| | South Africa | +27 21 300 2732 |
| | All other countries | +44 (0) 1235 239 670 |
| <u>America</u> | United States of Americaand Canada | +1866 928 0789 +1 215 207 0061 |
| <u>Latin America:</u> | Brazil | +55 113 711 9144 |
| | Mexico | +52 555 004 8763 |
| | Chile | +56 225 829 336 |
| | All other countries | +44 (0) 1235 239 670 |