



MATERIAL SAFETY DATA SHEET

PRODUCT : THIRAM 800WP
EFFECTIVE DATE : January 2021
REVISION NO : 2
PAGE : 1 of 5

SUPPLIER: NOVA AGRO (HK) LTD
(Reg. No. 1023146)
6th Floor Wyndham Place
44 Wyndham Street
CENTRAL HONG KONG.

EMERGENCY TELEPHONE NUMBERS
POISONINGS:
National Poison Centre (+27) 800 333 444
(South Africa)

1. IDENTIFICATION OF THE SUBSTANCE

Trade name THIRAM 800WP
Active ingredient Thiram 800g/kg
Chemical name teramethylthiuram disulfide
(IUPAC)
CAS No. 137-26-8
Chemical Family dimethyldithiocarbamate
Chemical Formula C₆H₁₂N₂S₄
Use A wettable powder fungicide with protective action.
UN no. 3077
Class 9

2. COMPOSITION /INFORMATION ON INGREDIENTS

Hazardous components Thiram
EINECS number 205-286-2
R phrases Xn, R20/22, Xi, R36/37, R40, R43
Mut. Cat. 3.

3. HAZARDS IDENTIFICATION

Toxicity class: WHO III; EPA III.
ADI(JMPR): 0.01 mg/kg b.w.
NOEL : 2 Years in rats: 1.5 mg/kg bw/day.
Main Hazards: May be harmful if ingested, inhaled or by skin contact.
Eye contact: The product may cause mild to moderate eye irritation.

Skin contact: Slightly irritant. Skin sensitizing properties
Ingestion: May be toxic if ingested.
Inhalation: May be irritating to the respiratory system. Toxic if inhaled.

4. FIRST AID AND MEDICAL MEASURES AND PRECAUTIONS

Thiram is the methyl analogue of disulfiram or Antabuse, a drug used to establish a conditioned reflex of fear of alcohol in the treatment of alcoholism. Ingestion of even a small amount of alcohol while undergoing Antabuse therapy is followed by distressing and occasionally dangerous symptoms, including flushing, palpitations, headache, nausea, vomiting, and dyspnea (Proctor et al, 1988). The systemic "Antabuse-alcohol" syndrome is apparently rare in thiram-exposed workers, but it has been reported.

Symptoms of exposure to the Thiram includes itching, scratchy throat, sneezing and coughing. Accidental swallowing has caused nausea, vomiting, diarrhoea, headache, ataxia, confusion and fatigue in man.

Inhalation:
Remove source of contamination or move victim to fresh air. Monitor for respiratory distress. Seek medical attention if necessary.

Skin contact:
Remove contaminated clothing, shoes and leather goods. Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. Seek medical advice if necessary. Persons who become sensitized may require specialised medical management with anti-inflammatory agents or cortisone-containing emulsions.

Eye contact :
Immediately flush the eyes with gently flowing lukewarm water or saline solution for 20 minutes. Obtain medical attention if necessary.

Ingestion:
In case of ingestion of significant quantities of the fungicide, medical advice should be sought immediately.

Advice to physician:
No specific antidotes are available against dithiocarbamate poisoning. If a large amount of the product has been ingested in the last few hours, and if copious vomiting has not already



MATERIAL SAFETY DATA SHEET

PRODUCT : **THIRAM 800WP**
EFFECTIVE DATE : **January 2021**
REVISION NO : **2**
PAGE : **2 of 5**

occurred, the stomach must be emptied and steps taken to limit gastrointestinal absorption. If the patient is fully alert and nervous system depression is not anticipated, oral administration of Syrup of Ipecac is probably the best way to empty the stomach.

Dosage of **Syrup of Ipecac**:

Adults and children over 12 years: 30 ml followed by 2-3 glasses of water

Children under 12 years: 15 ml followed by 1-2 glasses of water. Children less than one year should receive only 10-15 ml and should be under direct medical supervision if at all possible. When vomiting stops after induced emesis, give activated charcoal and cathartic orally by adding sorbitol to the charcoal slurry.

Dosage of **Activated Charcoal**:

Adults and children over 12 years:

50-100 mg in 300-800 ml water.

Children under 12 years:

15-30 mg in 100-300 ml water.

Dosage of **Sorbitol**:

Adults and children over 12 years:

1-2 mg/kg body weight to a maximum of 150 mg per dose.

Children under 12 years:

1.0-1.5 mg/kg body weight to a maximum of 50 mg per dose.

If sorbitol is given separately, it should be diluted with an equal volume of water before administration.

If there are any indications of central nervous system depression, or if the patient fails to vomit within 30 minutes of Syrup of Ipecac administration, measures should be taken to protect the respiratory tract from aspiration of gastric contents, then the stomach should be emptied by gastric intubation, aspiration and lavage with a slurry of activated charcoal. Install activated charcoal following lavage. Unless diarrhoea has already commenced, include a cathartic to hasten elimination.

CAUTION: Do not instill fluid so rapidly that overloading of the stomach leads to vomiting or regurgitation, followed by aspiration. Serious electrolyte disturbances may follow catharsis, especially in young children.

If contact with the toxicant has been minimal, administration of charcoal without the cathartic, followed by careful observation of the patient, probably represent optimal management.

Extinguishing agents:

Extinguish **small fires** with carbon dioxide, dry powder, or alcohol-resistant foam. Extinguish **large fires** with carbon dioxide, dry powder or alcohol resistant foam. Water spray can be used for cooling of unaffected stock, but **avoid water coming in contact** with the product.

Firefighting:

Fight fire from maximum distance. Remove container from fire area if possible. Contain fire control agents for later disposal. Use a recommended extinguishing agent for the type of surrounding fire. Water can be used to cool unaffected containers. Avoid inhaling hazardous vapours. Keep upwind.

Special hazards:

Fire may produce irritating or poisonous gases and vapors, such as sulfur dioxide, carbon disulfide and carbon monoxide

Personal protective equipment:

Fire-fighters and others that may be exposed should wear full chemical protective clothing and self-contained breathing apparatus.

5. FIRE FIGHTING MEASURES

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Avoid contact with skin and eyes. Do not breathe in fumes. For personal protection see Section 8.

Environmental precautions:

Do not allow entering drains or watercourses. When the product contaminates public waters, inform appropriate authorities immediately in accordance with local regulations.

Occupational spill:

For **small dry spills**, sweep up with damp earth or sand or other suitable absorbent, such as sawdust, taking care not to raise a dust cloud. Place the material into a clean, dry container and cover for subsequent disposal. All contaminated cleaning materials should be placed in closeable receptacles. In situations where product comes in contact with water, contain contaminated water for later disposal. Do not flush spilled material into drains. Keep spectators away and upwind.

Large spills: DO NOT wash away into sewer. Sweep spilled substance into sealable containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to



MATERIAL SAFETY DATA SHEET

PRODUCT : THIRAM 800WP
EFFECTIVE DATE : January 2021
REVISION NO : 2
PAGE : 3 of 5

safe place (extra personal protection: P2 filter respirator for harmful particles).

7. HANDLING AND STORAGE REQUIREMENTS

Handling:

Avoid contact with eyes, prolonged contact with skin, and inhalation of dust and vapour. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Remove clothing immediately if the product gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Do not apply directly to areas where surface water is present, or to intertidal areas below the mean high water mark. Water used to clean equipment must be disposed of correctly to avoid contamination.

Storage:

Keep out of reach of unauthorized persons, children and animals. Store in its original labeled container in shaded, well-ventilated area, away from heat, sparks and other sources of ignition - NO SMOKING. Store in dry area and protect from temperatures below 0°C and above 50°C. Avoid breaking the containers, spillages or leaks. Do not allow the product to become overheated in storage. Not to be stored next to foodstuffs and water supplies. Local regulations should be complied with.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Occupational exposure limits:

5 mg/m³ OSHA TWA

5 mg/m³ ACGIH TWA

Engineering control measures:

It is essential to provide adequate ventilation. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations.

PERSONAL PROTECTIVE EQUIPMENT:

Respirator: An approved full-face respirator suitable for protection from dusts and mists of pesticides is required.

Limitations of respirator use specified by the approving agency and the manufacturer must be observed.

Clothing: Employee must wear appropriate protective (impervious) clothing, boots, hat and equipment to prevent repeated or prolonged skin contact with this substance. Do not wear leather clothing.

Gloves: Employee must wear appropriate chemical resistant protective gloves to prevent contact with this substance.

Eye protection: The use of safety goggles is recommended.

Emergency eye wash: Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: An off white to grey wettable powder.

Odour: Odourless.

Explosive properties: Containers may explode in heat or fire.

Flammability: No information currently available

Flash point: Not applicable.

Oxidising properties: No information currently available

pH: No information currently available

Bulk density: No information available.

Storage stability: Stable for 2 years under normal, dry storage conditions in unopened packages.

Solubility in water(Technical): In water 18 mg/l 25°C

Solubility in organic solvents(Technical):

Active ingredient in mg/l (25°C)

Ethanol <10

Acetone 80

Chloroform 230

Partition-coefficient in n-octanol / water (Technical):

No information currently available

Melting point (Technical): 155-156°C

10. STABILITY AND REACTIVITY

Stability: Stable under normal, dry storage conditions in originally unopened packages. Slowly decomposed in acidic media. Some deterioration on prolonged exposure to heat, air or moisture.



MATERIAL SAFETY DATA SHEET

PRODUCT : THIRAM 800WP
EFFECTIVE DATE : January 2021
REVISION NO : 2
PAGE : 4 of 5

Incompatibility: Incompatible with acidic materials. The product is compatible with many other pesticides when used at normal rates. However, a compatibility test is required before using with other products. Do not physically mix concentrate directly with other herbicides or pesticide concentrates; always dilute first.

Thermal decomposition: Formation of toxic oxides of carbon, nitrogen and sulphur on heating.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀ : 2600 mg/kg in rats. (Data for active ingredient)

Acute dermal LD₅₀ : >2 000 mg/kg in rabbits (Data for the Active Ingredient).

Acute inhalation LC₅₀ : 4.42 g/m³ in rats (Data for the Active Ingredient).

Acute skin irritation: Slightly irritant.

Acute eye irritation: Moderate irritant.

Dermal sensitisation: The product provokes dermal sensitisation (Guinea pigs).

Carcinogenicity: Animal studies did not detect any carcinogenic activity. No human data available.

Teratogenicity: Maternal doses of 125 mg/kg thiram were teratogenic in hamsters. No human data available.

Mutagenicity: Thiram has been found to be mutagenic in some organisms but not in others.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGY:

Birds: Practically non-toxic.

Acute oral LD₅₀: > 5000 mg/kg (Japanese quail)

Fish:

Thiram is toxic to fish.

96 hour LC₅₀: 0.128 mg/L (Rainbow Trout).

Bees:

Low toxic to bees.

Contact LD₅₀ > 73.7 µg/bee. (75% formulation).

Daphnia:

Toxic to *Daphnia magna*.

EC₅₀ (48h): 0.21 mg/λ.

Degradability:

The product is rapidly degraded in the environment by microbial action, hydrolysis, oxidation, photolysis, and metabolism. The half-life in soil is 128 days (pH 4) and 9 h (pH 9).

Mobility:

Thiram is nearly immobile in clay soils or in soils high in organic matter. The product is nor expected to contaminate ground water.

Accumulation:

The product shows little tendency to bioaccumulate.

13. DISPOSAL CONSIDERATION

Pesticide disposal: Contaminated absorbents, used containers, surplus product, etc., should be burnt at > 1000°C in an incinerator, preferably designed for pesticide disposal, or buried in an approved landfill. Comply with local legislation applying to waste disposal.

Package product wastes: Incinerate the material at a facility that complies with local, state and federal regulations.

14. TRANSPORT INFORMATION

UN NUMBER: 3077

ADR/IRD:

Substance ID no.: 3077

Hazard ID no.: -

Label: 9

IMDG/IMO:

Packaging group: III

Label of class: 9

Shipping name: Environmentally hazardous substance, solid, n.o.s. (Thiram)

ICAO/IATA:

Shipping name: Environmentally hazardous substance, solid, n.o.s. (Thiram)

Class: 9

Hazard Label: Miscellaneous

Packaging group: III



MATERIAL SAFETY DATA SHEET

PRODUCT : **THIRAM 800WP**
EFFECTIVE DATE : **January 2021**
REVISION NO : **2**
PAGE : **5 of 5**

Passenger Aircraft: 911 (max 30 kg)
911 (No limit)
Cargo Aircraft: 911 (No limit)

15. REGULATORY INFORMATION

Symbol: Xn, Xi

Indication of danger: Harmful, Irritant.

Risk phrases:

R20/22 Harmful by inhalation and in contact with skin.

R36/R 37 Irritating to eyes and respiratory system.

R40 Possible risk of irreversible effects

R43 May cause sensitisation by skin contact.

Safety phrases:

S2 Keep out of the reach of children

S36/37 Wear suitable protective clothing and gloves.

National legislation: In accordance with 91/155/EEC Directive and with French standard T 01-102 and the South African Occupational Health and Safety Act, 1993 (act. No. 85 of 1993)

16. OTHER INFORMATION

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith believed to be correct. This information applies to the PRODUCT AS SUCH. In case of formulations or mixes, it is necessary to ascertain that a new danger will not appear. It is the responsibility of persons in receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produces formulation(s) containing this product, it is the recipient's sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.

REFERENCES

- *The Pesticide Manual*; 13th Edition; Editor Clive Tomlin; Crop Protection Publications, 2003.

- *Pestline*. Material Safety Data Sheets for Pesticides and Related Chemicals; Volume II; Occupational Health Services Inc., 1991.
- *Agriculture and Public Health*; Guide to the Treatment of Poisoning by Chemicals, 1993.
- MICROMEDEX, INC. Environmental Health and Safety Series.
- IATA, Dangerous Goods Regulations, 41st Edition, Effective 1 January 2000.
- EXTTOXNET, Pesticide Information Profile, 03/11/98.