

Section 1 - Identification of The Material and Supplier

FMC Australasia Pty Ltd
12 Julius Ave
North Ryde, NSW 2113

Emergency: 1800 033 111 (24 hours - Australia wide)
Freecall 1800 624 597 (business hours)
www.fmccrop.com.au

Chemical nature: Blend of fungicide and other minor ingredients in water
Trade Name: Reaper TT Liquid Seed Dressing Fungicide
APVMA Code: 62177
Product Use: Agricultural fungicide for use as described on the product label.
Creation Date: July, 2016
This version issued: September, 2016 and is valid for 5 years from this date.
Poisons Information Centre: Phone 13 1126 from anywhere in Australia

Section 2 - Hazards Identification

Statement of Hazardous Nature

This product is classified as: Xn, Harmful. Xi, Irritating. Hazardous according to the criteria of SWA.

Not a Dangerous Good according to Australian Dangerous Goods (ADG) Code, IATA or IMDG/IMSBC criteria.

SUSMP Classification: S5

ADG Classification: None allocated. Not a Dangerous Good according to Australian Dangerous Goods (ADG) Code, IATA or IMDG/IMSBC criteria.

UN Number: None allocated



GHS Signal word: WARNING

Acute Toxicity Oral Category 4
Skin Sensitisation Category 1
Serious eye damage/eye irritation Category 2B
Acute Toxicity Inhalation Category 4
Specific Target Organ Toxicity - Single Exposure Category 3
Specific Target Organ toxicity - single exposure Category 2

HAZARD STATEMENT:

H302: Harmful if swallowed.
H317: May cause an allergic skin reaction.
H320: Causes eye irritation.
H332: Harmful if inhaled.
H335: May cause respiratory irritation.
H371: May cause damage to organs.

PREVENTION

P102: Keep out of reach of children.
P261: Avoid breathing fumes, mists, vapours or spray.
P262: Do not get in eyes, on skin, or on clothing.
P264: Wash contacted areas thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P271: Use only outdoors or in a well ventilated area.
P280: Wear protective gloves, protective clothing and eye or face protection.

RESPONSE

P314: Get medical advice or attention if you feel unwell.
P363: Wash contaminated clothing before reuse.
P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302+P352: IF ON SKIN: Wash with plenty of soap and water.
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

STORAGE

P403+P233: Store in a well-ventilated place. Keep container tightly closed.

DISPOSAL

P501: Dispose of contents and containers as specified on the registered label.

Emergency Overview

Physical Description & Colour: Green opaque liquid

Odour: Mild odour.

Major Health Hazards: Thiram is irritating to the eyes, skin, and respiratory tract. It is a skin sensitizer. Symptoms of acute inhalation exposure to Thiram include itching, scratchy throat, hoarseness, sneezing, coughing, inflammation of the nose or throat, bronchitis, dizziness, headache, fatigue, nausea, diarrhoea, and other gastrointestinal complaints. Persons with chronic respiratory or skin disease are at increased risk from exposure to Thiram. Ingestion of Thiram and alcohol together may cause stomach pains, nausea, vomiting, headache, slight fever, and possible dermatitis. harmful by inhalation and if swallowed, irritating to eyes and respiratory system, possible skin sensitizer.

Section 3 - Composition/Information on Ingredients

Ingredients	CAS No	Conc,%	TWA (mg/m ³)	STEL (mg/m ³)
Thiram	137-26-8	360 g/L	1	not set
Thiabendazole	148-79-8	200 g/L	not set	not set
Other ingredients said to be non hazardous	Secret	<10	not set	not set
Water	7732-18-5	to 100	not set	not set

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non hazardous ingredients are also possible.

The SWA TWA exposure value is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. The STEL (Short Term Exposure Limit) is an exposure value that may be equalled (but should not be exceeded) for no longer than 15 minutes and should not be repeated more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term "peak "is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly.

Section 4 - First Aid Measures

General Information:

You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this SDS with you when you call.

Inhalation: If symptoms of poisoning become evident, contact a Poisons Information Centre, or call a doctor at once. Remove source of contamination or move victim to fresh air. If breathing is difficult, oxygen may be beneficial if administered by trained personnel, preferably on a doctor's advice. DO NOT allow victim to move about unnecessarily. Symptoms of pulmonary oedema can be delayed up to 48 hours after exposure.

Skin Contact: Irritation is unlikely. However, if irritation does occur, flush with lukewarm, gently flowing water for 5 minutes or until chemical is removed.

Eye Contact: No effects expected. If irritation does occur, flush contaminated eye(s) with lukewarm, gently flowing water for 5 minutes or until the product is removed. Obtain medical advice if irritation becomes painful or lasts more than a few minutes. Take special care if exposed person is wearing contact lenses.

Ingestion: If swallowed, do NOT induce vomiting. Wash mouth with water and contact a Poisons Information Centre, or call a doctor.

Section 5 - Fire Fighting Measures

Fire and Explosion Hazards: The major hazard in fires is usually inhalation of heated and toxic or oxygen deficient (or both), fire gases. There is no risk of an explosion from this product under normal circumstances if it is involved in a fire.

Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.

Extinguishing Media: In case of fire, use carbon dioxide, dry chemical, foam, water fog.

Fire Fighting: If a significant quantity of this product is involved in a fire, call the fire brigade.

Flash point: Does not burn.

Upper Flammability Limit: Does not burn.

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Lower Flammability Limit:	Does not burn.
Autoignition temperature:	Not applicable - does not burn.
Flammability Class:	Does not burn.

Section 6 - Accidental Release Measures

Accidental release: In the event of a major spill, prevent spillage from entering drains or water courses. Wear full protective clothing including eye/face protection. All skin areas should be covered. See below under Personal Protection regarding Australian Standards relating to personal protective equipment. Suitable materials for protective clothing include PVC, Nitrile. Eye/face protective equipment should comprise as a minimum, protective goggles. Eye/face protective equipment should include a full face shield. If there is a significant chance that vapours or mists are likely to build up in the cleanup area, we recommend that you use a respirator. Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned below (section 8).

Stop leak if safe to do so, and contain spill. Absorb onto sand, vermiculite or other suitable absorbent material. If spill is too large or if absorbent material is not available, try to create a dike to stop material spreading or going into drains or waterways. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. Recycle containers wherever possible after careful cleaning. Refer to product label for specific instructions. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Full details regarding disposal of used containers, spillage and unused material may be found on the label. If there is any conflict between this SDS and the label, instructions on the label prevail. Ensure legality of disposal by consulting regulations prior to disposal. Thoroughly launder protective clothing before storage or re-use. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

Section 7 - Handling and Storage

Handling: Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Check Section 8 of this SDS for details of personal protective measures, and make sure that those measures are followed. The measures detailed below under "Storage" should be followed during handling in order to minimise risks to persons using the product in the workplace. Also, avoid contact or contamination of product with incompatible materials listed in Section 10.

Storage: This product is a Scheduled Poison. Observe all relevant regulations regarding sale, transport and storage of this schedule of poison. Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight. Make sure that the product does not come into contact with substances listed under "Incompatibilities" in Section 10. Some liquid preparations settle or separate on standing and may require stirring before use. Check packaging - there may be further storage instructions on the label.

Section 8 - Exposure Controls and Personal Protection

The following Australian Standards will provide general advice regarding safety clothing and equipment:

Respiratory equipment: **AS/NZS 1715**, Protective Gloves: **AS 2161**, Occupational Protective Clothing: AS/NZS 4501 set 2008, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

SWA Exposure Limits	TWA (mg/m³)	STEL (mg/m³)
Thiram	1	not set

The ADI for Thiram is set at 0.004mg/kg/day. The corresponding NOEL is set at 0.4mg/kg/day.

The ADI for Thiabendazole is set at 0.3mg/kg/day. The corresponding NOEL is set at 3mg/kg/day. ADI means Acceptable Daily Intake; NOEL means No-observable-effect-level. Data from Australian ADI List, June 2014.

No special equipment is usually needed when occasionally handling small quantities. The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems.

Ventilation: No special ventilation requirements are normally necessary for this product. However make sure that the work environment remains clean and that vapours and mists are minimised.

Eye Protection: Eye protection is not normally necessary when this product is being used. However, if in doubt, wear suitable protective glasses or goggles.

Skin Protection: The information at hand indicates that this product is not harmful and that normally no special skin protection is necessary. However, we suggest that you routinely avoid contact with all chemical products and that you wear suitable gloves (preferably elbow-length) when skin contact is likely.

Protective Material Types: There is no data that enables us to recommend any type except that it should be impermeable. PVC, nitrile.

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Respirator: Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned above.

Safety deluge showers should, if practical, be provided near to where this product is being handled commercially.

Section 9 - Physical and Chemical Properties:

Physical Description & colour:	Green opaque liquid
Odour:	Mild odour.
Boiling Point:	Boils at about 100°C at 100kPa.
Freezing/Melting Point:	Approximately 0°C.
Volatiles:	Water component.
Vapour Pressure:	No data.
Vapour Density:	No data.
Specific Gravity:	1.13 Approx
Water Solubility:	Completely soluble.
pH:	No data.
Volatility:	No data.
Odour Threshold:	No data.
Evaporation Rate:	No data.
Coeff Oil/water Distribution:	1.73 (Thiram); 2.39 (Thiabendazole)(log P octanol/water)
Autoignition temp:	Not applicable - does not burn.

Section 10 - Stability and Reactivity

Reactivity: This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.

Conditions to Avoid: Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.

Incompatibilities: strong acids, strong bases, strong oxidising agents.

Fire Decomposition: Combustion forms carbon dioxide, and if incomplete, carbon monoxide and possibly smoke. Water is also formed. May form nitrogen and its compounds, and under some circumstances, oxides of nitrogen. Occasionally hydrogen cyanide gas in reducing atmospheres. May form oxides of sulfur (sulfur dioxide is a respiratory hazard) and other sulfur compounds. Most will have a foul odour. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

Polymerisation: Polymerisation reactions are unlikely; they are not expected to occur.

Section 11 - Toxicological Information

Toxicity: Acute toxicity: Thiram is harmful by ingestion and inhalation and by dermal absorption. Acute exposure in humans may cause headaches, dizziness, fatigue, nausea, diarrhoea, and other gastrointestinal complaints. In rats and mice, large doses of Thiram produced muscle incoordination, hyperactivity followed by inactivity, loss of muscular tone, laboured breathing, and convulsions. Most animals died within 2 to 7 days. Thiram is irritating to the eyes, skin, and respiratory tract. It is a skin sensitizer. Symptoms of acute inhalation exposure to Thiram include itching, scratchy throat, hoarseness, sneezing, coughing, inflammation of the nose or throat, bronchitis, dizziness, headache, fatigue, nausea, diarrhoea, and other gastrointestinal complaints. Persons with chronic respiratory or skin disease are at increased risk from exposure to Thiram. Ingestion of Thiram and alcohol together may cause stomach pains, nausea, vomiting, headache, slight fever, and possible dermatitis. Workers exposed to Thiram during application or mixing operations within 24 hours of moderate alcohol consumption have been hospitalized with symptoms. The 4-hour inhalation LC₅₀ for Thiram is greater than 500 mg/L in rats. Reported oral LD₅₀ values for Thiram are 620 to over 1900 mg/kg in rats; 1500 to 2000 mg/kg in mice; and 210 mg/kg in rabbits. The dermal LD₅₀ is greater than 1000 mg/kg in rabbits and in rats.

Chronic toxicity: Symptoms of chronic exposure to Thiram in humans include drowsiness, confusion, loss of sex drive, incoordination, slurred speech, and weakness, in addition to those due to acute exposure. Repeated or prolonged exposure to Thiram can also cause allergic reactions such as dermatitis, watery eyes, sensitivity to light, and conjunctivitis. Except for the occurrence of allergic reactions, harmful chronic effects from Thiram have been observed in test animals only at very high doses. In one study, a dietary dose of 125 mg/kg/day Thiram was fatal to all rats within 17 weeks. Oral doses of about 49 mg/kg/day to rats for 2 years produced weakness, muscle incoordination, and paralysis of the hind legs. Rats fed 52 to 67 mg/kg/day for 80 weeks exhibited hair loss, and paralysis and atrophy of the hind legs. Symptoms of muscle incoordination and paralysis from Thiram poisoning have been shown to be associated with degeneration of nerves in the lower lumbar and pelvic regions. Day-old white

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leghorn chicks fed 30 and 60 ppm for 6 weeks exhibited bone malformations. At doses of about 10% of the LD₅₀ for 15 days, Thiram reduced blood platelet and white blood cell counts, suppressed blood formation, and slowed blood coagulation in rabbits.

Reproductive effects: Very high oral doses of approximately 1200 mg/kg/day Thiram to mice on days 6 to 17 of pregnancy caused resorption of embryos and retarded foetal development. In another study, doses of 132 mg/kg/day for 13 weeks produced infertility in male mice, while doses of 96 mg/kg/day for 14 days delayed the oestrous cycle in females. The feeding of 50 mg/kg/day Thiram from day 16 of pregnancy to 21 days after birth caused reduced growth and survival of the pups. Pups that were transferred to untreated dams at birth remained healthy, while pups transferred from untreated to treated dams showed toxic effects. These data suggest that reproductive effects occur at high doses not likely to be experienced by humans.

Teratogenic effects: Cleft palate, wavy ribs, and curved long leg bones were observed in the offspring of mice that ingested very high Thiram doses of 1200 mg/kg/day on days 6 to 17 of pregnancy. Maternal doses of 125 mg/kg/day Thiram were teratogenic in hamsters, causing incomplete formation of the skull and spine, fused ribs, abnormalities of the legs, heart, great vessels, and kidneys. Developmental toxicity was observed in a three-generation study of rats fed 5.0 mg/kg/day. These data suggest that high doses are required to cause teratogenic effects.

Mutagenic effects: Thiram has been found to be mutagenic in some test organisms but not in others. Thus, the evidence is inconclusive.

Carcinogenic effects: When administered to mice at the highest dose possible, Thiram was not carcinogenic. Dietary levels as high as 125 mg/kg/day for 2 years did not cause tumours in rats. These data indicate that Thiram is not carcinogenic.

Organ toxicity: Studies have shown evidence of damage to the liver by Thiram in the form of decreased liver enzyme activity and increased liver weight. Thiram may also cause damage to the nervous system, blood, and kidneys.

Fate in humans and animals: In the body, carbon disulfide is formed from the breakdown of Thiram and does contribute to the toxicity of Thiram to the liver. Thiram is not a member of the ethylene(bis)dithiocarbamate (EBDC) chemical family, and thus it should not generate ethylene thiourea (ETU).

There is no data to hand indicating any particular target organs.

Thiram is classed by SWA as a potential sensitiser by skin contact.

Classification of Hazardous Ingredients

Ingredient	Risk Phrases
Thiram	No risk phrases at concentrations found in this product
<ul style="list-style-type: none"> Acute toxicity - category 4 Acute toxicity - category 4 Specific target organ toxicity (repeated exposure) - category 2 Eye irritation - category 2 Skin irritation - category 2 Skin sensitisation - category 1 Hazardous to the aquatic environment (acute) - category 1 Hazardous to the aquatic environment (chronic) - category 1 	
Thiabendazole	No risk phrases at concentrations found in this product
<ul style="list-style-type: none"> Hazardous to the aquatic environment (acute) - category 1 Hazardous to the aquatic environment (chronic) - category 1 	
Thiram: LD ₅₀ Oral, Rat 620 - >1,900mg/kg	LD ₅₀ Oral, Mouse = 1,500 - 2,000mg/kg
LD ₅₀ Oral, Rabbit = 210mg/kg	LD ₅₀ Dermal, Rat = >1,000mg/kg
LD ₅₀ Dermal, Rabbit = >1,000mg/kg	LC ₅₀ Inhalation, Rat = >500mg/Lmg/L/4hr

Potential Health Effects

Persons sensitised to Thiram should avoid contact with this product.

Inhalation:

Short Term Exposure: Significant inhalation exposure is considered to be unlikely. Available data shows that this product is harmful, but symptoms are not available. In addition product may be mildly irritating, although unlikely to cause anything more than mild transient discomfort.

Long Term Exposure: No data for health effects associated with long term inhalation.

Skin Contact:

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Short Term Exposure: Significant dermal exposure is considered to be unlikely. Available data indicates that this product is not harmful. It should present no hazards in normal use. However product may be mildly irritating, but is unlikely to cause anything more than mild discomfort which should disappear once contact ceases.

Long Term Exposure: No data for health effects associated with long term skin exposure.

Eye Contact:

Short Term Exposure: Exposure via eyes is considered to be unlikely. This product may be mildly irritating to eyes, but is unlikely to cause anything more than mild discomfort which should disappear once product is removed.

Long Term Exposure: No data for health effects associated with long term eye exposure.

Ingestion:

Short Term Exposure: Significant oral exposure is considered to be unlikely. Available data shows that this product is harmful, but symptoms are not available. However, this product may be mildly irritating to mucous membranes but is unlikely to cause anything more than mild transient discomfort.

Long Term Exposure: No data for health effects associated with long term ingestion.

Carcinogen Status:

SWA: No significant ingredient is classified as carcinogenic by SWA.

NTP: No significant ingredient is classified as carcinogenic by NTP.

IARC: Thiram is Class 3 - unclassifiable as to carcinogenicity to humans.

See the IARC website for further details. A web address has not been provided as addresses frequently change.

Section 12 - Ecological Information

This product is biodegradable. It will not accumulate in the soil or water or cause long term problems.

Effects on birds: Thiram is practically non-toxic to birds. The reported dietary LC₅₀ of Thiram in Japanese quail is greater than 5000 ppm. Reported dietary LC₅₀ values in pheasants and mallard ducks are 2800 ppm and 673 ppm, respectively. The LD₅₀ for the compound in red-winged blackbirds is greater than 100 mg/kg.

Effects on aquatic organisms: Thiram is highly toxic to fish. The LC₅₀ for the compound is 0.23 mg/L in bluegill sunfish, 0.13 mg/L in trout, and 4 mg/L in carp. Thiram is not expected to bioconcentrate in aquatic organisms.

Effects on other organisms: Thiram is non-toxic to bees.

Environmental Fate:

Breakdown in soil and groundwater: Thiram is of low to moderate persistence. It is nearly immobile in clay soils or in soils high in organic matter. Because it is only slightly soluble in water (30 mg/L) and has a strong tendency to adsorb to soil particles, Thiram is not expected to contaminate groundwater. The soil half-life for Thiram is reported as 15 days. Thiram degrades more rapidly in acidic soils and in soils high in organic matter. In a humus sandy soil, at pH 3.5, Thiram decomposed after 4 to 5 weeks, while at pH 7.0, Thiram decomposed after 14 to 15 weeks. Thiram persisted for over 2 months in sandy soils, but disappeared within 1 week from a compost soil. The major metabolites of Thiram in the soil are copper dimethyldithiocarbamate, dithiocarbamate, dimethylamine, and carbon disulfide. In soil, Thiram will be degraded by microbial action or by hydrolysis under acidic conditions. Thiram will not volatilize from wet or dry soil surfaces.

Breakdown in water: In water, Thiram is rapidly broken down by hydrolysis and photodegradation, especially under acidic conditions. Thiram may adsorb to suspended particles or to sediment.

Breakdown in vegetation: No data are currently available.

Section 13 - Disposal Considerations

Disposal: Special help is available for the disposal of Agricultural Chemicals. The product label will give general advice regarding disposal of small quantities, and how to cleanse containers. However, for help with the collection of unwanted rural chemicals, contact ChemClear 1800 008 182 <http://www.chemclear.com.au/> and for help with the disposal of empty drums, contact DrumMuster <http://www.drummuster.com.au/> where you will find contact details for your area.

Section 14 - Transport Information

UN Number: This product is not classified as a Dangerous Good by ADG, IATA or IMDG/IMSBC criteria. No special transport conditions are necessary unless required by other regulations.

Section 15 - Regulatory Information

AICS: All of the significant ingredients in this formulation are compliant with NICNAS regulations.

The following ingredients: Thiram, Thiabendazole, are mentioned in the SUSMP.

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Section 16 - Other Information

This SDS contains only safety-related information. For other data see product literature.

Acronyms:

ADG Code	Australian Code for the Transport of Dangerous Goods by Road and Rail (7 th edition)
AICS	Australian Inventory of Chemical Substances
SWA	Safe Work Australia, formerly ASCC and NOHSC
CAS number	Chemical Abstracts Service Registry Number
Hazchem Code	Emergency action code of numbers and letters that provide information to emergency services especially firefighters
IARC	International Agency for Research on Cancer
NOS	Not otherwise specified
NTP	National Toxicology Program (USA)
R-Phrase	Risk Phrase
SUSMP	Standard for the Uniform Scheduling of Medicines & Poisons
UN Number	United Nations Number

THIS SDS SUMMARISES OUR BEST KNOWLEDGE OF THE HEALTH AND SAFETY HAZARD INFORMATION OF THE PRODUCT AND HOW TO SAFELY HANDLE AND USE THE PRODUCT IN THE WORKPLACE. EACH USER MUST REVIEW THIS SDS IN THE CONTEXT OF HOW THE PRODUCT WILL BE HANDLED AND USED IN THE WORKPLACE.

IF CLARIFICATION OR FURTHER INFORMATION IS NEEDED TO ENSURE THAT AN APPROPRIATE RISK ASSESSMENT CAN BE MADE, THE USER SHOULD CONTACT THIS COMPANY SO WE CAN ATTEMPT TO OBTAIN ADDITIONAL INFORMATION FROM OUR SUPPLIERS. OUR RESPONSIBILITY FOR PRODUCTS SOLD IS SUBJECT TO OUR STANDARD TERMS AND CONDITIONS, A COPY OF WHICH IS SENT TO OUR CUSTOMERS AND IS ALSO AVAILABLE ON REQUEST.

Please read all labels carefully before using product.

This SDS is prepared in accord with the SWA document "Preparation of Safety Data Sheets for Hazardous Chemicals - Code of Practice" (December 2011)

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