

MATERIAL SAFETY DATA SHEET



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Issued: March 2011

Emergency Contact:
1800 033 111

SECTION 1 IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: eChem Thiram 600 Fungicide

Full Product Name: eChem Thiram 600 Fungicide.
Other Names: Thiram. Group M3 Fungicide.
Use: A liquid agricultural fungicidal seed treatment.
Company: eChem (Australia) Pty Ltd
Address: Level 4, Lantos Place 80 Stamford Road, Indooroopilly QLD 4068
ACN/ABN: 089 133 095
Telephone Number: 07 4696 1054 **Fax Number:** 07 4696 1057
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SECTION 2 HAZARDS IDENTIFICATION

**Classified as hazardous according to criteria of Safe Work Australia.
Not classified as a Dangerous Good according to the ADG Code**

Risk Phrases: R20/22 Harmful by inhalation and if swallowed.
R36/38 Irritating to eyes and skin.
R43 May cause sensitization by skin contact.
R48/22 Danger of serious damage to health by prolonged exposure if swallowed.

Safety Phrases: S2 Keep out of reach of children.
S13 Keep away from food, drink and animal feeding stuffs.
S24/25 Avoid contact with skin and eyes.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S51 Use only in well ventilated areas.

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

CHEMICAL	CAS NUMBER	PROPORTION
Thiram	137-26-8	600 g/L
1,2 dihydroxypropane	57-55-6	< 10%
Preservative	secret	<10%
Other ingredients (including water) determined not to be hazardous		Balance

SECTION 4 FIRST AID MEASURES

FIRST AID

Ingestion: If swallowed do NOT induce vomiting. Give a glass of water. Rinse mouth thoroughly with water. If poisoning occurs, contact a Doctor or Poisons Information Centre. Phone 131 126.

SECTION 4 FIRST AID MEASURES (Continued)

Eye contact: Immediately hold eyes open and flood with clean water. Ensure irrigation under eyelids by occasionally lifting them. Do not try to remove contact lenses unless trained. If irritation persists, seek medical advice.

Skin contact: Remove contaminated clothing. Wash skin with soap and water. If skin is irritated, seek medical advice.

Inhalation: Remove to fresh air and observe until recovered. If effects persist, seek medical advice. Over-exposure by inhalation is unlikely.

Advice to Doctor:

Treat symptomatically. Avoid giving alcohol - may cause vomiting and shock.

SECTION 5 FIRE FIGHTING MEASURES

Extinguishing media: Not flammable. No risk of explosion if involved in a fire. Extinguish fire using media suited to burning material. If containers are ruptured contain all runoff.

Hazards from combustion products: Product is likely to decompose after heating to dryness and continued strong heating and will emit toxic fumes. Firefighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapour or smoke.

Precautions for fire-fighters and special protective equipment: Isolate fire area. Evacuate downwind residents. Wear full protective clothing and self contained breathing apparatus. Do not breathe smoke or vapours generated.

SECTION 6 ACCIDENTIAL RELEASE MEASURES**Emergency procedures / Material and methods for containment and cleanup procedures:**

Accidental release: In the event of a major spill, prevent spillage from entering drains or water courses. As a minimum, wear overalls, goggles and gloves. Suitable materials for protective clothing include rubber, PVC. Eye/face protective equipment should comprise, as a minimum, protective glasses and, preferably, goggles. If there is a significant chance that vapours or mists are likely to build up in the cleanup area, the use of a respirator is recommended.

In the case of spillage, stop leak if safe to do so, and contain spill. Absorb spilled material with absorbent material such as sand, clay or cat litter and dispose of waste as indicated below or according to the Australian Standard 2507 - Storage and Handling of Pesticides. Wear prescribed protective clothing and equipment. Keep out animals and unprotected persons.

After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Thoroughly launder protective clothing before storage or re-use.

SECTION 7 HANDLING AND STORAGE

Precautions for Safe Handling: No smoking, eating or drinking should be allowed where material is used or stored. When opening the container, preparing the product and using the prepared product wear cotton overalls buttoned to the neck and wrist (or equivalent clothing), elbow length rubber gloves and face shield or goggles. If product on skin immediately wash area with soap and water. If product in eyes wash it out immediately with water. Wash hands after use. After each day's use, wash gloves, face shield or goggles and contaminated clothing.

Conditions for Safe Storage: Not classified as a Dangerous Good by the ADG. This product is a Schedule 6 Poison (S6) and must be stored, transported and sold in accordance with the relevant Health Department regulations. Store in the closed, original container in a well ventilated area away from children, animals, food, feedstuffs, seed and fertilisers. Do not store for prolonged periods in direct sunlight.

Seed treated with this product must not be used for animal or human consumption or be allowed to contaminate seed intended for animal or human consumption. Treated seed, when stored, should be kept apart from other seed. The containers should be clearly marked to indicate the contents have been treated with this product.

SECTION 8 | EXPOSURE CONTROLS / PERSONAL PROTECTION**Exposure Guidelines:**

The following Exposure guideline has been established for this product by Safe Work Australia.

Atmospheric Contaminant	Exposure Standard (TWA)	STEL (mg/m ³)
Thiram	1 mg/m ³	Not set
1,2 dihydroxypropane	474 mg/m ³ (150 ppm)	Not set

TWA = Time-weight Average

Biological Limit Values:

No biological limit allocated.

Engineering controls:

Keep containers closed when not in use. No special engineering controls are required, however make sure that the work environment remains clean and that vapours and mists are minimised.

Personal Protective equipment (PPE):

Skin: When opening the container, preparing the product and using the prepared product wear cotton overalls buttoned to the neck and wrist (or equivalent clothing), elbow length rubber gloves and face shield or goggles.

Eye Protection: Eye/face protection is recommended such as a face shield or goggles.

Respiratory Protection: Generally not required. Use of a respirator may be required in certain circumstances to protect from inhalation of spray mist.

After Use: Wash hands after use. After each day's use, wash gloves, face shield or goggles and contaminated clothing.

SECTION 9 | PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Off white to light brown suspension.
Odour:	Minimal odour.
Boiling point:	No data available.
Freezing point:	No data available.
Specific Gravity:	Approximately 1.1 at 20°C.
Solubility in Water:	Suspends in water.
pH:	7 - 8.
Flammability:	Not flammable.
Flash Point:	Not applicable – not flammable.
Vapour pressure:	No data.
Corrosive hazard:	Not corrosive.
Explosive properties:	Not explosive.
Oxidizing properties:	Not an oxidiser.

SECTION 10 | STABILITY AND REACTIVITY

Chemical Stability: Product is considered stable in ambient conditions for a period of at least 2 years after manufacture.

Conditions to avoid: Avoid alkaline materials.

Incompatible materials: The addition of a strong acid will cause release of carbon disulphide vapour. Carbon disulphide is a volatile liquid, toxic - TLC/TWA 31 mg/m³, autoignition temperature 100°C.

Hazardous decomposition products: This product is likely to decompose only after heating to dryness, followed by further strong heating. Hazardous decomposition products include hydrogen disulphide, carbon monoxide and nitrogen oxides.

Hazardous reactions: The addition of a strong acid will cause release of carbon disulphide vapour. Polymerisation is unlikely.

SECTION 11 TOXICOLOGICAL INFORMATION

No specific data is available for this product as no toxicity tests have been conducted on this product. Information presented is our best judgement based on similar products and/or individual components. As with all products for which limited data is available, caution must be exercised through the use of protective equipment and handling procedures to minimise exposure.

Potential Health Effects:**ACUTE EFFECTS**

Swallowed: Possible symptoms of exposure of the concentrate include: headache, arrhythmia, shortness of breath and nausea. Consumption of alcohol increases the toxic effects. Acute oral LD₅₀ (rat) 2600 mg/kg, LD₅₀ (mice) 1500-2000 mg/kg LD₅₀ (rabbit) 210 mg/kg.

Eye: This product is irritating to the eyes.

Skin: Prolonged contact with the concentrate may cause irritation. Prolonged or repeated exposure may cause skin sensitisation. Acute dermal LD₅₀ (rabbit) >2000 mg/kg.

Inhaled: Inhalation of mists or sprays may produce respiratory irritation. Acute inhalation LC₅₀ = (rat) 4.42 mg/L/4 hours.

Long Term Exposure:

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.

Reproductive effects: Very high oral doses of Thiram to pregnant mice caused resorption of embryos and retarded foetal development and infertility in male mice, and delayed the oestrous cycle in females. The feeding of 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. 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.

SECTION 12 ECOLOGICAL INFORMATION

Environmental Toxicology: No data is available on this product. The active ingredient, thiram, is practically nontoxic to birds. The dietary LC₅₀ of Thiram in Japanese quail > 5000 ppm. Dietary LC₅₀ in pheasants = 2800 ppm and mallard ducks = 673 ppm, respectively. The LD₅₀ for the compound in red-winged blackbirds > 100 mg/kg. Thiram is highly toxic to fish. The LC₅₀ = 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. Thiram is nontoxic to bees.

SECTION 12 | ECOLOGICAL INFORMATION (Continued)

Environmental Fate: 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 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. In water, Thiram is rapidly broken down by hydrolysis and photodegradation, especially under acidic conditions. Thiram may adsorb to suspended particles or to sediment. Do not contaminate dams, waterways or sewers with this product.

SECTION 13 | DISPOSAL CONSIDERATIONS

Spills and Disposal: Persons involved in cleanup require adequate skin protection - see section 8. In case of spillage, contain and absorb spilled material with absorbent material such as clay, sand or cat litter and dispose of waste as indicated below or in accordance to the Australian Standard 2507- Storage and Handling of Pesticides. Keep out animals and unprotected persons. Keep material out of streams and sewers. Vacuum, shovel or pump waste into an approved drum. To decontaminate spill area, tools and equipment, wash with detergent and water and add the solution to the drums of wastes already collected and label contents. Dispose of drummed wastes, including decontamination solution in accordance with the requirements of Local or State Waste Management Authorities.

Disposal of empty containers: Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on-site. If recycling, replace cap and return clean containers to recycler or designated collection point. If an approved waste management facility is not available bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots, in compliance with relevant Local, State or Territory government regulations. DO NOT burn empty containers or product.

SECTION 14 | TRANSPORT INFORMATION

Road & Rail Transport: This product is not classified as a Dangerous Goods under the Australian Code for the Transport of Dangerous Goods by Road and Rail in containers less than 3000 litres. Bulk shipments should use UN 3082, as per below. This product is a Schedule 6 Poison (S6) and must be stored, transported and sold in accordance with the relevant Health Department regulations.

Marine and Air Transport: Product is a Marine Pollutant according to International Maritime Dangerous Goods (IMDG) Code and the International Air Transport Association (IATA). If transporting by sea or air the following Dangerous Goods Classification applies:-
UN 3082, Class 9 (Miscellaneous Dangerous Goods), Packing Group III, Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Contains 60% Thiram).

SECTION 15 | REGULATORY INFORMATION

Under the Standard for Uniform Scheduling of Medicines and Poisons (SUSMP), this product is a schedule 6 poison.

This product is registered under the Agricultural and Veterinary Chemicals Code Act 1994. Product Registration No. 65286.

This product is classified as a Hazardous Substance under the criteria of Safe Work Australia. Xn: Harmful.

This product is not classified as a Dangerous Good according to the ADG Code (7th Ed).

This product is classified as a Dangerous Good according to International Maritime Dangerous Goods (IMDG) Code and the International Air Transport Association (IATA).

SECTION 16 OTHER INFORMATION

Issue Date: 9 March 2011. (First issue).

Key to abbreviations and acronyms used in this MSDS:

ADG Code	Australian Dangerous Goods Code (for the transport of dangerous goods by Road and Rail).
Carcinogen	An agent which is responsible for the formation of a cancer.
Genotoxic	Capable of causing damage to genetic material, such as DNA.
NOHSC	National Occupational Health and Safety Commission.
PPE	Personal protective equipment.
Teratogen	An agent capable of causing abnormalities in a developing foetus.
STEL	Short Term Exposure Limits.
TWA	The Time Weighted Average airborne concentration over an eight-hour working day, for a five day working week over an entire working life.
Safe Work Australia:	Formally known as Australian Safety & Compensation Council (ASCC) which was formally known as the National Occupational Health & Safety Commission (NOHSC)).

References

1. "Search Hazardous Substances". HSIS Safe Work Australia website. (2011).
2. "Approved Criteria for Classifying Hazardous Substances" 3rd Ed. NOHSC Australia. [NOHSC:1008 (2004)]. October 2004.

This MSDS 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 should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

End MSDS