

Turf Culture Thumper Miticide & Nematicide

1. IDENTIFICATION OF THE SUBSTANCE AND THE COMPANY

Product Name:	Turf Culture Thumper Miticide & Nematicide
Supplier:	Turf Culture Pty Ltd
ACN:	117 986 615
Street Address:	Unit 9, 57-59 Horne Street Sunbury Vic 3429
Telephone:	03 9553 3121
Facsimile:	03 8888 9991
Substance:	Abamectin is a macrocyclic lactone derivative
Recommended Use:	For the control of Couch Mite in Couch turf and Nematodes in Turf as directed on the product label

2. HAZARD IDENTIFICATION

Statement of Hazardous Nature

This product is classified as: Xn, Harmful. Xi, Irritating. N, Dangerous to the environment. Hazardous according to the criteria of ASCC.

Not a Dangerous Good according to the Australian Dangerous Goods (ADG) Code.

SUSDP Classification: S6

ADG Classification: None allocated. Not a Dangerous Good under the ADG Code.

UN Number: None allocated

Risk Phrases: R50, R20/21/22, R36/38. Very toxic to aquatic organisms. Harmful by inhalation, in contact with skin, and if swallowed. Irritating to eyes and skin.

Safety Phrases: S20, S23, S26, S28, S38, S45, S60, S61, S24/25. When using, do not eat or drink. Do not breathe vapours or spray mists. In case of contact with eyes, rinse immediately with plenty of water and contact a doctor or Poisons Information Centre. After contact with skin, wash immediately with plenty of soap and water. In case of insufficient ventilation, wear suitable respiratory equipment. In case of accident or if you feel unwell, contact a doctor or Poisons Information Centre immediately (show this MSDS where possible). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/Safety Data Sheets. Avoid contact with skin and eyes.

Emergency Overview

Physical Description & Colour: Dark yellow, water thin liquid.

Odour: Characteristic odour.

Major Health Hazards: Symptoms of poisoning observed in laboratory animals include pupil dilation, vomiting, convulsions and/or tremors, and coma. Abamectin acts on insects by interfering with the nervous system. At very high doses, it can affect mammals, causing symptoms of nervous system depression such as incoordination, tremors, lethargy, excitation, and pupil dilation. Very high doses have caused death from respiratory failure. Abamectin is not readily absorbed through skin. Harmful by inhalation, in contact with skin, and if swallowed, irritating to eyes and skin.

Potential Health Effects

Inhalation:

Short Term Exposure: Available data shows that this product is harmful, see symptoms above. 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: Available data shows that this product is harmful, see symptoms above. In addition product is a skin irritant. Symptoms may include itchiness and reddening of contacted skin. Other symptoms may also become evident, but all should disappear once exposure has ceased.

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

Eye Contact:

Short Term Exposure: This product is an eye irritant. Symptoms may include stinging and reddening of eyes and watering which may become copious. Other symptoms may also become evident. If exposure is brief, symptoms should disappear once exposure has ceased. However, lengthy exposure or delayed treatment may cause permanent damage.

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, see symptoms above. However, this product is an oral irritant. Symptoms may include burning sensation and reddening of skin in mouth and throat. Other symptoms may also become evident, but all should disappear once exposure has ceased.

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

Carcinogen Status:

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

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

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

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS No.	Conc. %	TWA (mg/m ³)	STEL (mg/m ³)
Abamectin	71751-41-2	20 g/L	not set	not set
Triethylene glycol	112-27-6	30-60	not set	not set
Other non-hazardous ingredients	various	30-60	not set	not set
Water	7732-18-5	10-30	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 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 should not be exceeded for more than 15 minutes and should not be repeated for 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.

4. FIRST AID MEASURES

Consult the Poisons Information Centre (Australia 13 11 26) or a doctor in every case of suspected chemical poisoning. Never give fluids or induce vomiting if a patient is unconscious or convulsing regardless of cause of injury. If breathing difficulties occur seek medical attention immediately.

Eyes: Quickly and gently blot or brush away product. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water until the product is removed or until a few minutes after irritation has ceased, while holding the eyelid(s) open. Take care not to rinse contaminated water into the unaffected eye or onto the face. Obtain medical advice if irritation becomes painful or lasts more than a few minutes.

Skin: Quickly and gently, blot or brush away excess chemical. Wash gently and thoroughly with water (use non-abrasive soap if necessary) for 20 minutes or until chemical is removed. Under running water, remove contaminated clothing, shoes and leather goods (e.g. watchbands and belts). If irritation persists, repeat flushing and obtain medical advice. Completely decontaminate clothing, shoes and leather goods before reuse or discard. Obtain medical advice if irritation becomes painful or lasts more than a few minutes.

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

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Inhalation: If inhalation occurs, contact a Poisons Information Centre. Hospital treatment is likely to be needed. 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.

Advice to Doctor: Supportive care. No specific requirements. Treat symptomatically.

5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: There is little risk of an explosion from this product if commercial quantities are involved in a fire.

This product is likely to decompose only after heating to dryness, followed by further strong heating.

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

Extinguishing Media: Not Combustible. Use extinguishing media suited to burning materials. Water fog or fine spray is the preferred medium for large fires. Try to contain spills, minimise spillage entering drains or watercourses.

Fire Fighting: If a significant quantity of this product is involved in a fire, call the fire brigade. There is little danger of a violent reaction or explosion if significant quantities of this product are involved in a fire.

Recommended personal protective equipment is liquid-tight chemical protective clothing and breathing apparatus.

Flash point: Will not burn until water component is driven off

Upper Flammability Limit: Does not burn

Lower Flammability Limit: Does not burn

Autoignition temperature: Does not burn

Flammability Class: Does not burn

6. ACCIDENTAL RELEASE MEASURES

Accidental release: In the event of a major spill, prevent spillage from entering drains or watercourses. 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 rubber, PVC, butyl rubber. Eye/face protective equipment should comprise as a minimum, protective goggles. 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. It should be fitted with a type G cartridge, suitable for agricultural chemicals. Otherwise, not normally necessary.

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. Because of the toxicity of this product, special personal care should be taken in any cleanup operation. 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. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. This material may be suitable for approved landfill. 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.

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 MSDS 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 class of poison. Store in a cool, well ventilated area. Check containers periodically for leaks.

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Containers should be kept closed in order to minimise contamination. Make sure that the product does not come into contact with substances listed under "Materials to avoid" in Section 10. If you keep more than 1000kg or 1000L of Toxic Substances of Packaging Group III, you will require a license to do so. If you have any doubts, we suggest you contact your licensing authority in order to clarify your obligations. Check packaging - there may be further storage instructions on the label.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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

Respiratory equipment: **AS/NZS 1715**, Protective Gloves: **AS 2161**, Industrial Clothing: **AS2919**, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

ASCC Exposure Limits TWA (mg/m³) STEL (mg/m³)

Exposure limits have not been established by ASCC for any of the significant ingredients in this product.

The ADI for Abamectin is set at 0.0005mg/kg/day. The corresponding NOEL is set at 0.5mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, April 2008.

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: This product should only be used in a well ventilated area. If natural ventilation is inadequate, use of a fan is suggested.

Eye Protection: Protective glasses or goggles should be worn when this product is being used. Failure to protect your eyes may cause them harm. Emergency eye wash facilities are also recommended in an area close to where this product is being used.

Skin Protection: Prevent skin contact by wearing impervious gloves, clothes and, preferably, apron. Make sure that all skin areas are covered. See below for suitable material types.

Protective Material Types: We suggest that protective clothing be made from the following materials: rubber, PVC, butyl rubber.

Respirator: Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned above. Otherwise, not normally necessary.

Eyebaths or eyewash stations and safety deluge showers should be provided near to where this product is being used.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Description	Water thin liquid
Colour:	Dark yellow
Odour:	Characteristic odour
pH:	4-6 (1% in water)
Boiling Point:	Approximately 100°C at 100kPa
Freezing/Melting Point:	Below 0°C
Volatiles:	Water component
Vapour Pressure:	2.37 kPa at 20°C (water vapour pressure)
Vapour Density:	No data
Specific Gravity:	1.0 at 20°C
Water Solubility:	Forms emulsion in water
Autoignition temp:	Does not burn

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: This product should be kept in a cool place, preferably below 30°C. Containers should be kept dry. Keep isolated from combustible materials.

Incompatibilities: Strong oxidising agents.

Fire Decomposition: Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Water. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

Polymerisation: This product is unlikely to undergo polymerisation processes.

11. TOXICOLOGICAL INFORMATION

Toxicity: Acute toxicity: Abamectin is highly toxic to insects and may be highly toxic to mammals as well. Symptoms of poisoning observed in laboratory animals include pupil dilation, vomiting, convulsions and/or tremors, and coma. Abamectin acts on insects by interfering with the nervous system. At very high doses, it can affect mammals, causing symptoms of nervous system depression such as incoordination, tremors, lethargy, excitation, and pupil dilation. Very high doses have caused death from respiratory failure. Abamectin is not readily absorbed through skin. Tests with monkeys show that less than 1% of dermally applied abamectin was absorbed into the bloodstream through the skin.

Abamectin does not cause allergic skin reactions. The oral LD50 for abamectin in rats is 10 mg/kg, and in mice ranges from 14 mg/kg to greater than 80 mg/kg. The dermal LD50 for technical abamectin in rats and rabbits is greater than 330 mg/kg.

Chronic toxicity: In a 1-year study with dogs given oral doses of abamectin, dogs at the 0.5 and 1 mg/kg/day doses exhibited pupil dilation, weight loss, lethargy, tremors, and recumbency. Similar results were seen in a 2-year study with rats fed 0.75, 1.5, or 2 mg/kg/day. Rats at all the dosage levels exhibited body weight gains significantly higher than the controls. A few individuals in the high dose group exhibited tremors. When mice were fed 8 mg/kg/day for 94 weeks, the males developed dermatitis and changes in blood formation in the spleen, while females exhibited tremors and weight loss.

Reproductive effects: Rats given 0.40 mg/kg/day of abamectin had increased stillbirths, decreased pup viability, decreased lactation, and decreased pup weights. These data suggest that abamectin may have the potential to cause reproductive effects at high enough doses.

Teratogenic effects: Abamectin produced cleft palate in the offspring of treated mice and rabbits, but only at doses that were also toxic to the mothers. There were no birth defects in the offspring of rats given up to 1 mg/kg/day. Abamectin is unlikely to cause teratogenic effects except at doses toxic to the mother.

Mutagenic effects: Abamectin does not appear to be mutagenic. Mutagenicity tests in live rats and mice were negative. Abamectin was shown to be non-mutagenic in the Ames test.

Carcinogenic effects: Abamectin is not carcinogenic in rats or mice. The rats were fed dietary doses of up to 2 mg/kg/day for 24 months, and the mice were up to 8 mg/kg/day for 22 months. These represent the maximum tolerated doses.

Organ toxicity: Animal studies indicate that abamectin may affect the nervous system.

Fate in humans and animals: Tests with laboratory animals show that ingested avermectin B1a is not readily absorbed into the bloodstream by mammals and that it is rapidly eliminated from the body within 2 days via the faeces. Rats given single oral doses of avermectin B1a excreted 69 to 82% of the dose unchanged in the faeces. The average half-life of avermectin B1a in rat tissue is 1.2 days. Lactating goats given daily oral doses for 10 days excreted 89% of the administered avermectin, mainly in the faeces. Less than 1% was recovered in the urine.

Classification of Hazardous Ingredients

No ingredient mentioned in the HSIS Database is present in this product at hazardous concentrations.

12. ECOLOGICAL INFORMATION

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

Effects on birds: Abamectin is practically non-toxic to birds. The LD50 for abamectin in bobwhite quail is >2000 mg/kg. The dietary LC50 is 3102 ppm in bobwhite quail. There were no adverse effects on reproduction when mallard ducks were fed dietary doses of 3, 6, or 12 ppm for 18 weeks.

Effects on aquatic organisms: Abamectin is highly toxic to fish and extremely toxic to aquatic invertebrates. Its LC50 (96-hour) is 0.003 mg/L in rainbow trout, 0.0096 mg/L in bluegill sunfish, 0.015 mg/L in sheepshead minnows, 0.024 mg/L in channel catfish, and 0.042 mg/L in carp. Its 48-hour LC50 in *Daphnia magna*, a small freshwater crustacean, is 0.003 mg/L. The 96-hour LC50 for abamectin is 0.0016 mg/L in pink shrimp, 430 mg/L in eastern oysters, and 153 mg/L in blue crab. While highly toxic to aquatic organisms, actual concentrations of abamectin in surface waters adjacent to treated areas are expected to be low. Abamectin did not bioaccumulate in bluegill sunfish exposed to 0.099 µg/L for 28 days in a flow-through tank. The levels in fish were from 52 to 69 times the ambient water concentration, indicating that abamectin does not accumulate or persist in fish.

Effects on other organisms: Abamectin is highly toxic to bees, with a 24-hour contact LC50 of 0.002 µg/bee and an oral LD50 of 0.009 µg/bee.

Breakdown in soil and groundwater: Abamectin is rapidly degraded in soil. At the soil surface, it is subject to rapid photodegradation, with half-lives of 8 hours to 1 day reported. When applied to the soil surface and not shaded, its soil half-life is about 1 week. Under dark, aerobic conditions, the soil half-life was 2 weeks to 2 months. Loss of abamectin from soils is thought to be due to microbial degradation. The rate of degradation was significantly decreased under anaerobic conditions. Because abamectin is nearly insoluble in water and has a strong tendency to bind to soil particles, it is immobile in soil and unlikely to leach or contaminate groundwater. Compounds produced by the degradation of abamectin are also immobile and unlikely to contaminate groundwater.

Breakdown in water: Abamectin is rapidly degraded in water. After initial distribution, its half-life in artificial pond water was 4 days. Its half-life in pond sediment was 2 to 4 weeks. It undergoes rapid photodegradation, with a half-life of 12 hours in water. When tested at pH levels common to surface and groundwater (pH 5, 7, and 9), abamectin did not hydrolyse.

Breakdown in vegetation: Plants do not absorb abamectin from the soil. Abamectin is subject to rapid degradation when present as a thin film, as on treated leaf surfaces. Under laboratory conditions and in the presence of light, its half-life as a thin film was 4 to 6 hours.

13. DISPOSAL CONSIDERATIONS

Disposal: Instructions concerning the disposal of this product and its containers are given on the product label. These should be carefully followed. 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.

14. TRANSPORT INFORMATION

ADG Code: This product is not classified as a Dangerous Good. No special transport conditions are necessary unless required by other regulations.

15. REGULATORY INFORMATION

Poisons Schedule S6

Packaging & Labelling

POISON

KEEP OUT OF REACH OF CHILDREN

READ SAFETY DIRECTIONS BEFORE OPENING OR USING

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

16. OTHER INFORMATION

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

All due care and skill, so far as practicable, has been applied in the preparation and collation of the information in this MSDS. Each user of the Product named in this MSDS should read and consider the information contained in this MSDS in the context of how the Product will be stored, handled, used or applied in the workplace. In all circumstances, it is the responsibility of the user of the Product to ensure that they have sought out the relevant safety data appropriate to their particular situation.

Nothing contained in this MSDS shall be construed as a representation or recommendation to the user about the suitability or otherwise of the Product named in this MSDS for the user's particular situation.

If the user requires any clarification or further information, the user should contact Turf Culture Pty Ltd.

CONTACT POINT: Turf Culture Pty Ltd
Unit 9, 57-59 Horne Street
Sunbury Vic 3429

Telephone: 03 9553 3121

Facsimile: 03 8888 9991

National Poisons Information Centre:

Dial 13 11 26 (from anywhere in Australia)

Please read all labels carefully before using product.