

MATERIAL SAFETY DATA SHEET

SECTION 1 – IDENTIFICATION OF THE CHEMICAL PRODUCT AND COMPANY

Product Name: Kenso Agcare Triadimefon 125 Fungicide
Product Type: Group C Fungicide
Company Name: Kenso Corporation (M) Sdn Bhd
Address: Unit 3C, 59, Oxford Street, Bulimba Queensland 4171
Telephone Number: (07) 3217 9788
Facsimile Number: (07) 3217 9733
Emergency Telephone Number: 000 (Police or Fire Brigade)
13 11 26 (Poisons Information Centre)
Use: For the control of fungal disease of wheat, barley, peas, grapevines, cucurbits and sugar cane as per the Directions for Use table.

SECTION 2 – HAZARDS IDENTIFICATION

Statement of Hazardous Nature

This product is classified as hazardous chemical according to the criteria of NOHSC.

Risk Phrases: R36, R43, R65, R66. Irritating to eyes. May cause sensitisation by skin contact. Harmful: May cause lung damage if swallowed. Repeated exposure may cause skin dryness or cracking.
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Safety Phrases: S28, S46, S24/25, S37/39. After contact with skin, wash immediately with plenty of soap and water. If swallowed, contact a doctor or Poisons Information Centre immediately and show this container or label. Refer to special instructions/Safety Data Sheets. Avoid contact with skin and eyes. Wear suitable gloves and eye/face protection.

SUSDP Classification: S6
ADG Classification: None allocated
UN Number: None allocated

Emergency Overview

Physical Description & colour: clear amber colour liquid.

Odour: aromatic hydrocarbon odour

Major Health Hazards: Triadimefon is harmful if swallowed and if inhaled. Dermal it is harmful to non-harmful depending on species. Studies of acute effects in rats have indicated a potential to induce neurobehavioral effects. Data regarding eye and skin irritation are inconclusive. For product: eye irritant, possible skin sensitiser, if spirated, may cause lung damage.

Potential Health Effects

Health Effects This product is toxic according to NOHSC Australia.

Acute:

- Swallowed:** The spray solution is not considered a significant hazard due to the relatively low toxicity of the diluted product. The concentrate has been assessed using the Worksafe Criteria and has been found to be of low toxicity.
- Skin:** The concentrate may irritate the skin. Facial skin contact may cause temporary numbness.
- Inhaled:** Dust may be slightly toxic if inhaled over long periods. Avoid the inhalation of spray mists.
- Eye:** The concentrate is moderately irritating to the eyes.

Chronic:

The active has been associated with changes in the liver, decreased kidney weights and altered urinary bladder structure in laboratory animals exposed to 18-60 mg/kg/day. The ingredients are not listed as carcinogenic. Studies suggest it is unlikely that triadimefon will cause birth defects in humans under normal circumstances. Evidence suggests it is unlikely that triadimefon will cause reproductive toxicity in humans under normal conditions.

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS number	Proportion
Triadimefon	43121-43-3	12.5%
Aromatic hydrocarbon		80%
Other inert ingredients	secret	To 100%

SECTION 4 – FIRST AID MEASURES

Swallowed:	If swallowed do NOT induce vomiting; seek medical advice immediately and show this container or label or contact the Poisons Information Centre on 13 11 26. Make every effort to prevent vomit from entering the lungs by careful placement of the patient.
Skin:	If skin contact occurs, remove contaminated clothing and wash skin thoroughly with soap and water. If irritation persists seek medical advice.
Eyes:	If in eyes, hold eyes open and flood with water for at least 15 minutes.
Inhaled:	Remove affected person to fresh air until recovered. Consult a doctor if irritation persists.

Advice to Doctor

Treat symptomatically. Be aware that the product contains hydrocarbon solvent. Aspiration of vomitus into the lung can lead to bronchopneumonia or pulmonary oedema.

SECTION 5 – FIRE FIGHTING MEASURES

Fire and Explosion Hazards: This product is classified as a C1 combustible product. There is a slight risk of an explosion from this product if commercial quantities are involved in a fire. Violent steam generation or eruption may occur upon application of direct water stream on hot liquids. Vapours from this product are heavier than air and may accumulate in sumps, pits and other low-lying spaces, forming potentially explosive mixtures. They may also flash back considerable distances. Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.

Extinguishing Media: Preferred extinguishing media are carbon dioxide, dry chemical, foam, water fog.

Fire Fighting: When fighting fires involving significant quantities of this product, wear a splash suit complete with self contained breathing apparatus.

Flash point: 95°C (Pensky Martin closed cup)

Autoignition temperature: >450°C

Flammability Class: C1

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 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, we recommend that you use a respirator. It should be fitted with a type A cartridge, suitable for organic vapours. 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. 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 MSDS 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 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: Note that this product is combustible and therefore, for Storage, meets the definition of Dangerous Goods in some states. If you store large quantities (tonnes) of such products, we suggest that you consult your state's Dangerous Goods authority in order to clarify your obligations regarding their storage. Protect this product from light. 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**, Industrial Clothing: **AS2919**, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

SWA Exposure Limits	TWA (mg/m3)	STEL (mg/m3)
Naphthalene	52	79
N-Methyl-2-pyrrolidone	103	309

The ADI for Triadimefon is set at 0.03mg/kg/day. The corresponding NOEL is set at 2.5mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, Dec 2005. 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 where there is ventilation that is adequate to keep exposure below the TWA levels. If necessary, use a fan.

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: If you believe you may have a sensitisation to this product or any of its declared ingredients, you should 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.

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 should be provided near to where this product is being used.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Form:	Clear solution
Colour:	Amber
Odour:	Aromatic hydrocarbon
Melting point (°C):	< 0°C
Boiling point (°C):	> 220°C (solvent)
Specific Gravity:	1.027
Vapour Pressure:	0.02mPa (triadimefon)
Flash Point	~ 95°C (solvent)
Flammability Limits:	0.6 – 7.0 LEL – UEL (solvent)
Other Properties:	Emulsifiable. Disperse in water.

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: Protect this product from light. Store in the closed original container in a dry, cool, wellventilated area out of direct sunlight.

Incompatibilities: acids, strong bases, strong oxidising agents.

Fire Decomposition: Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Nitrogen and its compounds, and under some circumstances, oxides of nitrogen. Occasionally hydrogen cyanide gas in reducing atmospheres. Hydrogen chloride gas, other compounds of chlorine. 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 will not undergo polymerisation reactions.

SECTION 11 – TOXICOLOGICAL INFORMATION

Toxicity: An information profile for Prometryn is available at <http://extoxnet.orst.edu/pips/ghindex.html>

Acute toxicity: At 92.6%, Triadimefon has an acute oral LD50 of 300 to 600 mg/kg in rats, about 1000 mg/kg in mice, and about 500 mg/kg in rabbits and dogs. Triadimefon has a potential to cause adverse chronic effects at low to moderate dose levels. Acute inhalation toxicity of the compound is moderate. The 4-hour inhalation LC50 is greater than 0.48 mg/L in rats and approximately the same in mice. Acute toxicity through skin exposure is also fairly low. The LD50 values for the dermal toxicity of technical Triadimefon are greater than 1000 mg/kg in rats and 2000 mg/kg in rabbits. Studies of acute effects in rats have indicated a potential to induce neurobehavioral effects. Data regarding eye and skin irritation are inconclusive.

Chronic toxicity: A number of 2-year studies have indicated that there are several toxic responses to low to moderate doses of the compound. Long-term studies of Triadimefon in several species (rat, mouse, dog) over a range of doses indicated a reduction in body weight, changes in red blood cell counts, an increase in blood cholesterol levels, and increased liver weights. Increased liver weights may be seen as an adaptation to toxic stress, rather than a toxic endpoint related to exposure.

Reproductive effects: Female rats fed up to 90 mg/kg/day of 92.6% Triadimefon over three generations showed a number of adverse effects. This and other evidence suggests it is unlikely that Triadimefon will cause reproductive toxicity in humans under normal circumstances.

Teratogenic effects: The teratogenic potential of Triadimefon is relatively low. Doses causing birth defects in rats were high enough to also produce maternal toxicity. Thus, it is unlikely that Triadimefon will cause birth defects in humans under normal circumstances.

Mutagenic effects: Six separate studies indicate that the 92.6% Triadimefon compound is nonmutagenic. Several other tests were inconclusive. It is unlikely that the compound poses a significant mutagenic risk.

Carcinogenic effects: In a 2-year dietary study with mice, the highest dose tested (600 mg/kg/day) did not produce significant increases in tumour incidence. Due to high mortality, the reliability of this data is suspect. Another 2-year dietary study in mice showed increased liver cell hypertrophy (which may be related to tumour formation) at doses of greater than 36 mg/kg/day in males and 6 mg/kg/day for females. Increased liver cell adenoma was detected at all levels, but carcinoma was not detected at any level in this study. Based on this evidence, no conclusion can be drawn about the overall carcinogenicity of Triadimefon.

Organ toxicity: Triadimefon has been associated with changes in the liver, decreased kidney weights, and altered urinary bladder structure in laboratory animals exposed to 18 to 60 mg/kg/day. There is evidence that acute effects on the central nervous system may also occur.

Fate in humans and animals: After oral administration of a single dose of Triadimefon, most of the compound was eliminated unchanged in the urine and faeces within 2 to 3 days. Some breakdown of a small amount of the compound occurred in the liver.

SECTION 12 – ECOLOGICAL INFORMATION

This product is not readily biodegradable. It will not cause long term problems.

Effects on birds: Triadimefon ranges from slightly toxic to practically nontoxic to birds. For instance, the compound has an LD50 > 4000 mg/kg in mallard ducks. Japanese quail are less tolerant of the compound (LD50 of 2000 mg/kg) and canaries are even less tolerant (LD50 >1000 mg/kg).

Effects on aquatic organisms: The compound is slightly toxic to fish, indicating that they are more susceptible to the presence of the compound than are birds.

Effects on other organisms: The compound is nontoxic to honeybees.

Environmental Fate:

Breakdown in soil and groundwater: Triadimefon has low to moderate persistence in soils. In a sandy loam type of soil, half of the initial amount of the compound was lost within 18 days. Triadimefon and its residues are moderately mobile and may have potential to leach to groundwater.

Breakdown in water: In water with a pH 3.0, 6.0, or 9.0, almost 95% of the compound remained after 28 weeks. The compound is very stable in water and does not readily undergo hydrolysis.

Breakdown in vegetation: In plants, a breakdown product is triadimenol, and translocation and metabolism may vary according to plant species. Triadimenol is of comparable toxicity to Triadimefon.

SECTION 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.

SECTION 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.

SECTION 15 – REGULATORY INFORMATION

AICS: All of the significant ingredients in this formulation are to be found in the public AICS Database. The following ingredients: Dicofof-methyl, Liquid hydrocarbon, are mentioned in the SUSDP.

SECTION 16 – OTHER INFORMATION

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

CONTACT POINT:

Police and Fire Brigade:

Dial 000

National Poisons Information Centre:

Dial 13 11 26 (from anywhere in Australia)

For 24 hour emergency response:

Dial 0439 933 556

Ask for Murray Goodlich