

MATERIAL SAFETY DATA SHEET

ALPHATHRIN



Reg nr.: 2004/020524/07

PLANT PROTECTION

1. PRODUCT & COMPANY IDENTIFICATION

Product Name: ALPHATHRIN
Insecticide
UN No.: 3082
Supplier: Tsunami Plant Protection (Pty) Ltd
POBox 466, Heidelberg, 1438, South Africa
E-mail: info@tsunami.co.za
Web address: www.tsunami.co.za

24 Hr Emergency Number: 082 771 2712
In case of Poisoning:
Poison Information Centre 082 446 8946
Tygerberg Hospital: (021) 931 6129
Poison Emergency Enquiries (021) 689 5227
In case of Spillage:
HAZMAT: 0800 147 112

2. COMPOSITION / INFORMATION ON INGREDIENTS

Common Name: alpha-cypermethrin
Chemical Name: A racemate comprising:
(S)-alpha-cyano-3-phenoxybenzyl (1R,
3R)-3-(2,2-dichlorovinyl)-2,2-
dimethylcyclopropanecarboxylate and
(R)-alpha-cyano-3-phenoxybenzyl (1S,
3S)-3-(2,2-dichlorovinyl)-2,2-dimethyl-
cyclopropane-carboxylate (IUPAC)
CAS No.: 67375-30-8
Chemical family: pyrethroid
Chemical formula: C₂₂H₁₉Cl₂NO₃
Molecular weight: 416.3
Molecular weight: 416.3
Use: Non-systemic insecticide with stomach and contact
action. Acts on the central and peripheral nervous
system in very low doses.
Formulation: alpha-cypermethrin 100 g/l
Suspension Concentrate

Hazardous Ingredient:

<u>Inert:</u>	<u>concern:</u>	<u>% present:</u>
Alpha-cypermethrin	toxic	±10 %
Anti-foam, thickening & dispersing agents	irritant	± 2 %
Surfactants	no hazard	± 10 %
Water	no hazard	± 78 %

SYMBOLS: N, Xn
Indication of danger: Environmentally Hazardous
Substance, Harmful if swallowed.
RISK-PHRASE(S): R20/22, R36/37, R50/53, R57

3. HAZARD IDENTIFICATION

Skin: Mild skin irritant. The product may cause burning, itching or
tingling sensations of the skin and readily disappear within 24 hours
after exposure.

Eye: Mild irritant.

Inhalation: Not a hazard under normal use conditions. May cause,
after heavy exposure, nasal discharge and a scratchy throat,
hypersensitivity, ataxia and urinary incontinence.

Ingestion: Data suggests the product is harmful if swallowed.

Alpha-cypermethrin is moderately to highly toxic and 3-4 times more
toxic than cypermethrin.

The clinical signs of toxicity observed in the various acute toxicity
studies on experimental animals with alpha-cypermethrin are typical
for a cyano-containing pyrethroid intoxication. They included ataxia,
abasia, gait abnormalities, choreoathetosis, "tip-toe" walk, and
increased salivation, lacrimation, piloerection, tremor and chronic
convulsions.

Symptoms of high-dose ingestion may include dizziness, headache,
nausea, prolonged vomiting, stomach pains, diarrhea, fatigue,
ataxia, hypersensitivity, and urinary incontinence.

Other information -Physical/chemical effects:

Non-flammable.

Environmental effects:

Very toxic to fish and aquatic organisms.

4. FIRST AID MEASURES AND PRECAUTIONS

Inhalation:

If vapours or mists have been inhaled, and irritation has developed,
remove the source of contamination or move victim to fresh air.
Obtain medical attention if irritation persists.

Skin contact:

Remove contaminated clothing, shoes and leather goods. Wash
skin gently and thoroughly with cold water and non-abrasive soap.
Apply olive oil to the affected area to afford prompt relief. Obtain
medical attention if irritation persists.

Eye contact:

Immediately flush eyes with a stream of clean water for at least 20
minutes, holding the eyelid(s) open. Obtain medical attention if
irritation persists.

Ingestion:

Do not induce vomiting. Do not give anything by mouth. Obtain
medical attention. If the person is alert, rinse mouth thoroughly with
water and give 1 or 2 glasses of water to drink.

Advice on treatment:

There is no specific antidote available.

This product contains a pyrethroid. Inducing vomiting to remove this
preparation from the stomach can increase the risk of chemical
pneumonitis and pulmonary edema due to aspiration of stomach
contents.

The active ingredient in this compound, if allowed to penetrate the
skin may stimulate the nerve fibers in the skin, causing an irritation
similar to that of a sunburn. The active ingredient will be drawn
readily into a non-polar environment such as a fat based oil or
cream. Water is highly polar and after a prolonged period of time
will not decrease and may prolong the irritation. Treat discomfort
due to irritation symptomatically.

5. FIRE FIGHTING MEASURES

Fire and explosion hazard:

This material is not flammable. Moderately combustible.

Extinguishing agents:

Extinguish 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. Use as little water
as possible. Use spray or fog. Solid stream may cause spreading.
Contain water used for fire fighting for later disposal.

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Fire fighting:

Remove spectators from surrounding area. 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. Avoid inhaling hazardous vapours and fumes from burning materials. Keep upwind.

Personal protective equipment:

Fire may produce irritating or toxic fumes of hydrogen cyanide, chlorine, and oxides of nitrogen and carbon, mists or other products of combustion. Fire fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions:

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

Environmental precautions:

Avoid dispersion. Alpha-cypermethrin is toxic to fish and bees. In case of accidental spill, prevent the material from getting into lakes, rivers and other bodies of water and to areas where a bee population may be present. Isolate discharged material and keep material out of water sources.

Do not allow entering drains or watercourses. Spillage or uncontrolled discharges into water courses (or public waters) to be reported immediately to the Police and to the Department of Water/Environmental Affairs.

Occupational spill:

Do not touch spilled material; stop leak if you can do it without risk. Keep out unprotected persons and animals.

For small liquid spills, soak up with damp earth or sand, or other non-combustible absorbent material. Place the material into a clean, dry container and cover for subsequent disposal.

For large liquid spills, contain the liquid by damming in with absorptive material and pump into containers. Soak up remainder with absorbent material.

Label containers with its content and dispose it in accordance with local regulations. Open burning or dumping of this material is prohibited. Do not flush spilled material into drains. Keep spectators away. In situations where product comes in contact with water, contain contaminated water for disposal.

7. HANDLING AND STORAGE REQUIREMENTS

Handling:

Harmful by skin or eye contact, inhalation or ingestion. Avoid contact with eyes and skin, and inhalation of spray and vapour. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Operators should change and wash clothing daily. Remove clothing immediately if the insecticide 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 under lock and key and out of reach of unauthorised persons, children and animals. Store in its original labelled container in isolated, dry, cool and well-ventilated area. Not to be stored next to foodstuffs and water supplies. Local regulations should be complied with.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

It is essential to provide adequate ventilation. The measures appropriate for a particular work site 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:

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection.

Respirator:

For splash, mist, or spray exposure wear, as a minimum, a properly fitted half-face or full-face air-purifying respirator which is approved for pesticides. Respirator use and selection must be based on airborne concentrations.

Clothing:

Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.

Gloves:

Employee must wear appropriate synthetic 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: White to light brown coloured homogeneous liquid with slight typical odour.

Flammability: Not flammable.

Solubility: Forms a suspension in water.

pH: 6 to 9 (5% m/v suspension).

Density: 1,002 ± 0,005 g/ml

Corrosiveness: Not corrosive.

Oxidizing properties: Not oxidizing.

10. STABILITY AND REACTIVITY

Stability:

Chemically and thermally stable.

Stable for up to 2 years under normal storage conditions. Stable in aqueous media with pH 7 or less, but decomposes rapidly in alkaline solutions and in moist soil. The rate of decomposition increases at higher temperatures, in the presence of sunlight, and on exposure to air.

Incompatibility:

Spray solutions containing this product should be mixed, stored or applied using stainless steel, aluminium, fibreglass or plastic-lined containers and equipment. Product is relatively stable in neutral and weakly acidic media, but rapidly hydrolyzed in alkalis. The product is compatible with most 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. Alkaline

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substances may reduce the activity of the product. The product should therefore not be mixed with water with a high pH value.

Thermal decomposition:

Toxic oxides of nitrogen and sulphur are released when the product decomposes on heating.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀: > 2000 mg/kg in rats
Acute dermal LD₅₀: > 4000 mg/kg in rats
Inhalation: 4 mg/l (4 hours, rats)
Acute skin irritation: Mild irritant
Acute eye irritation: Mild irritant
Dermal sensitization: Mild skin sensitizer
Carcinogenicity:

No long-term or carcinogenicity studies have been conducted with alpha-cypermethrin.

Teratogenicity:

Alpha-cypermethrin has not been tested for reproductive effects or teratogenicity.

From the available reproduction and teratogenicity studies with cypermethrin it is clear that no influence on reproduction performance occurs at a level of 100 mg/kg diet, nor are there any teratogenic effects even with dose levels high enough to cause maternal toxicity (WHO, 1989). Furthermore, the no-observed-effect level of cypermethrin for reproduction and teratogenicity is comparable with the no-observed-effect levels based on other parameters of toxicity. In consequence, there is no reason to believe that alpha-cypermethrin, consisting of two cis isomers also present in cypermethrin, would behave differently.

Mutagenicity:

From the available data on alpha-cypermethrin, it can be concluded that this compound is non-mutagenic in tests.

ADI: 0,02 mg/kg body weight

12. ECOLOGICAL INFORMATION

Degradability:

Alpha-cypermethrin is not considered to be readily biodegradable. The degradation was investigated under aerobic conditions of alpha-cypermethrin, labelled with ¹⁴C in the benzyl ring, in two types of soil, i.e. sandy clay loam and clay loam. The initial degradation half-lives were 27 and 13 weeks for sandy clay loam and clay loam, respectively. However, after 42 weeks the percentage of applied radioactivity remaining unchanged was 28.9 and 21.6%, respectively, for the two soils. Metabolites were found in both cases at levels of 2 to 3%. Unchanged alpha-cypermethrin was present, and the degradation products had similar chromatographic mobilities to the previously identified major products of cypermethrin.

Bioaccumulation:

The *n*-octanol/water partition coefficient of alpha-cypermethrin is 1.4×10^5 (log *P*_{ow} = 5.16), compared to a value for cypermethrin of 2×10^6 (log *P*_{ow} = 6.3). The actual bioaccumulation in fish found experimentally for cypermethrin is lower than might be expected from the partition coefficient. This should also apply to alpha-cypermethrin, because the pathway and rate of metabolism are comparable with those of cypermethrin.

ECOTOXICOLOGY:

Very toxic to fish and aquatic invertebrates and toxic to bees in laboratory tests. But not harmful at normal rate under field conditions.

Fish:

LC₅₀ (96 hours): Rainbow trout: 2.8 µg/l
Fathead minnow 0.93 µg/l

Birds:

Oral LD₅₀: Northern bobwhite quail: > 2025 mg/kg
LC₅₀ (diet): Bobwhite quail: > 5000 mg/kg food

Daphnia:

EC₅₀ (24 hours): *Daphnia magna*: 1.1 µg/l
EC₅₀ (48 hours): *Daphnia magna*: 0.3 µg/l

Bees:

LD₅₀ (24 hours): 0.059 µg/bee
LC₅₀ (24 hours): 0.033 µg/bee

Algae:

EC₅₀ (96 h): *Pseudokirchneriella subcapitata*: > 100 µg/l

Earthworm:

LD₅₀ (14 d): > 100 mg/kg artificial soil.
No effect on earthworm reproduction was observed at a treatment representing 300 g/ha.

13. DISPOSAL CONSIDERATION

Pesticide and container disposal:

Open dumping or burning of this pesticide is prohibited. Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage into water systems. Do not contaminate rivers, dams or any other water sources with the product or used containers.

Emptied containers retain vapour and product residues. Observe all labelled safeguards until container is destroyed.

TRIPLE RINSE empty containers in the following manner. Invert the empty container over the spray or mixing tank and allow to drain for at least 30 seconds after the flow has slowed down to a drip. Thereafter rinse the container three times with a volume of water equal to a minimum of 10 % of that of the container. Add the rinsings to the contents of the spray tank before destroying the container in the prescribed manner.

Do not re-use the empty container for any other purpose but destroy it by perforation and flattening and bury in an approved dump site. Prevent contamination of food, feedstuffs, drinking water and eating utensils.

14. TRANSPORT INFORMATION

UN NUMBER: 3082

Road Transport ADR/RID:

Class: 9
Packaging group: III
Shipping name: Environmentally hazardous substance, liquid, N.O.S. (alpha-cypermethrin 100 g/l)

Maritime Transport IMDG/IMO:

Class: 9
Packing group: III
Shipping name: Environmentally hazardous substance, liquid, N.O.S. (alpha-cypermethrin 100 g/l)

Considered a marine pollutant.

15. REGULATORY INFORMATION

Symbol : N, Xn
Indication of danger : Environmentally hazardous Substance, Harmful

Product Code: Athrin100SC

Revision no: 3

Revision Date: February 2009

Document no: 029TP

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Risk phrase(s):

- R 22** Harmful if swallowed.
R 36/37/38 Irritating to eyes, respiratory system and skin.
R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R 57 Toxic to bees.

Safety phrases:

- S 1/2** Keep locked up and out of reach children.
S 23 Do not breathe vapour/spray.
S 24/25 Avoid contact with skin and eyes.
S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

16. OTHER INFORMATION

Packaging:

Packed in 50, 100, 200, 500 ml and 1 litre plastic and glass bottles and 1 & 5 litre high density polyethylene plastic containers and labelled according to South African regulations and guidelines.

Disclaimer:

The information on this sheet is not a specification; it does not guarantee specific properties. The information is intended to provide general guidance as to health and safety based upon our knowledge of the handling, storage use of the product. It is not applicable to unusual or non-standard uses of the product nor where instructions or recommendations are not followed.

All information is given in good faith but without guarantee in respect of accuracy, and no responsibility is accepted for errors and omissions or the consequence thereof.

END OF DOCUMENT

Compiled: January 2006 **Reviewed:** February 2009 (3)