


SECTION 1 - PRODUCT & COMPANY IDENTIFICATION

ARYSTA LifeScience South Africa (Pty) Ltd
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Product Name: KNOX WORM
Product Use: Insecticide
Creation Date: March 2011
Revision Date: August 2017

24 Hr Emergency Number:

In case of Poisoning:
 Poisons Helpline 0861 555 777
In case of Spillage:
 HAZMAT: 0800 147 112

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

Common Name: Cypermethrin
Chemical Name: (RS)- α -cyano-3-phenoxybenzyl (1RS,3RS;1RS,3SR)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate
Roth: (RS)- α -cyano-3-phenoxybenzyl (1RS)-cis-trans-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate (IUPAC)
Chemical family: Pyrethroid

Use: Non-systemic insecticide with stomach and contact action. Prevents the sodium channels from functioning, so that no transmission of nerve impulses can take place.

Formulation: C₂₂H₁₉Cl₂NO₃

Hazardous ingredients of toxicological concern:

<u>Inert:</u>	<u>concern:</u>	<u>% present:</u>
cypermethrin	harmful, irritant	20 %
aromatic solvents	irritant, flammable	± 60 %

Symbol: Xn, N
Indication of Danger: Harmful, Environmentally Hazardous Substance

RISK-PHASE(S) R10, R20/21/22, R36/37/38, R43, R50, R53, R57

SECTION 3 - HAZARD IDENTIFICATION

Toxicity class: WHO (a.i): Group II, moderately toxic.

Likely routes of exposure:
Skin:

Moderate irritant to the skin. Harmful if absorbed through skin. Expose to the skin can induce burning, itching or tingling sensations and readily disappear within several hours after exposure. Reversible skin sensations (paresthesia) may occur.

Eye:

Moderate irritant to the eyes. Likely to cause mild discomfort such as watering and redness of the eyes.

Inhalation:

Harmful if inhaled. Nasal discharge and a scratchy throat from inhalation may appear. Long term exposure may lead to permanent health problems.

Swallowed:
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Harmful if swallowed. Symptoms of high-dose ingestion include nausea, prolonged vomiting, stomach pains and diarrhea, which progresses to convulsions, unconsciousness and coma..

SECTION 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. The patient should be kept under observation and obtain medical attention if irritation persists.

Skin contact:

Remove contaminated clothing, shoes and leather goods immediately. Gently wipe of excess chemical. Wash skin gently and thoroughly with clean water and non-abrasive soap or mild detergent until no evidence of chemical remains (approximately 15 to 20 minutes). After the affected area is washed with soap and water, dry off and apply olive oil. Olive oil will afford prompt relief. Obtain medical attention if irritation persists. Persons who become sensitised may require specialised medical management with anti-inflammatory agents.

Eye contact:

Immediately flush eyes with clean running water for at least 20 minutes, holding the eyelid(s) open. Flush eyes immediately with large amounts of gently flowing cold water, occasionally lifting upper and lower lids, until no evidence of chemical remains (approximately 15 to 20 minutes). 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. If vomiting occurs, take care to prevent vomit from being inhaled.

Advice on treatment:

There is no specific antidote available. Cypermethrin is moderately toxic by dermal absorption or ingestion. In cases of ingestion, unless the patient is vomiting, consider gastric lavage with 5% sodium bicarbonate solution, followed by activated charcoal. Treatment should be symptomatic. Convulsions should be treated with anti-convulsants.

Over-exposure may cause local irritation of the skin (burning sensation on the face and elsewhere) and irritation of the respiratory tract causing rhinorrhea, chest tightness or dyspnea.

SECTION 5 - FIRE-FIGHTING MEASURES

Fire and explosion hazard:

Flash point: 35 °C. **Highly flammable. 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.

Firefighting:

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 poisonous vapours (toxic fumes of carbon oxides and nitrogen oxides), mists or other products of combustion. Fire fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

SECTION 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:

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:

Remove all sources of flames and sparks. For small liquid spills, soak up with lime, damp earth or sand, or other non-combustible absorbent material and place into containers for later disposal. For large liquid spills, contain the liquid for later disposal. In situations where product comes in contact with water, contain contaminated water for later disposal. Do not flush spilled material into drains. Keep spectators away.

SECTION 7 - HANDLING AND STORAGE REQUIREMENTS

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**Handling:**

Do not use near source of sparks or open flame. 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:

Do not store near sources of sparks, flame or heat. 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.

SECTION 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:

An approved respirator suitable for protection from mists of pesticides is adequate. Limitations of respirator use specified by the approved agency and the manufacturer must be observed.

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.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Amber homogeneous liquid with aromatic organic odour.
Flammability:	Flammable
Flash point:	35 °C
Solubility:	Forms an emulsion with water.
pH:	6 - 8 (5% m/v solution).
Density:	0.9 ± 0.05 g/ml @ 25 °C.

SECTION 10 - STABILITY AND REACTIVITY

Stability:

Chemically and thermally stable.

Stable under normal storage conditions. Stable in neutral and weak acidic media. The product is stable in light and water.

Incompatibility:

Compatible with many insecticides, fungicides and acaricides, but incompatible with alkaline substances. Breaks down in alkaline media and soil.

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute oral LD₅₀:	>250 mg/kg in rats (calculated) (technical = 250 g/kg in rats)
Acute dermal LD₅₀:	> 3000 mg/kg in rats (calculated)

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Inhalation: (technical = 1600 mg/kg in rats)
Harmful.
Technical = 2,5 (4 hours, rats)

Acute skin irritation: Moderate irritant.
Harmful if absorbed through skin.

Acute eye irritation: Moderate irritant.

Dermal sensitization: Mild sensitizer.
Reversible skin sensations (paresthesia) may occur.

Reproductivity:
No adverse effects on reproduction were observed in a three-generation study with rats.

Teratogenicity:

Not teratogenic. No birth defects were observed in the offspring of rats given doses as high as 70 mg/kg/day.

Mutagenicity:

Not mutagenic, but tests with very high doses on mice caused a temporary increase in the number of bone marrow cells with micronuclei. Other tests in human, bacterial, and hamster cell cultures and in live mice have been negative.

Carcinogenic effects:

EPA has classified cypermethrin as a possible human carcinogen because available information is inconclusive.

ADI: 0.05 mg/kg b.w (1996).

SECTION 12 - ECOLOGICAL INFORMATION

Degradability:

Biological degradation is rapid, and consequently levels of cypermethrin and its degradation products in soil and surface waters are very low. Cypermethrin has a moderate persistence in soils. Typical DT_{50} is 60 days (fine sandy loam). Cypermethrin is not soluble in water and has a strong tendency to adsorb to soil particles. It is therefore unlikely to cause groundwater contamination. Field dissipation is much faster. K_{oc} 26 492 to 144 652; K_f 821 to 1042; not pH-dependent.

In neutral or acid aqueous solution, cypermethrin hydrolyzes slowly, with hydrolysis being more rapid at pH 9. Under normal environmental temperatures and pH, cypermethrin is stable to hydrolysis with a half-life of greater than 50 days and to photodegradation with a half-life of greater than 100 days. Microbial degradation and photodegradation also occur.

ECOTOXICOLOGY:**Birds: Practically non-toxic to birds.**

Oral LD_{50} : Mallard ducks: > 10 000 mg/kg
Chickens: > 2000 mg/kg

Fish: Very toxic to fish. Under filed conditions, fish are not at risk from normal agriculture usage.

LC_{50} (96 hours): Rainbow trout: 0.69 $\mu\text{g}/\ell$
Sheepshead minnows: 2.37 $\mu\text{g}/\ell$

Daphnia:

LC_{50} (48 hours): *Daphnia magna*: 0.15 $\mu\text{g}/\ell$

Bees: Highly toxic to bees. However, no hazard to bees under normal application conditions.

LD_{50} (oral) (24 hours): 0.035 $\mu\text{g}/\text{bee}$
 LC_{50} (topical): 0.02 $\mu\text{g}/\text{bee}$

SECTION 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. Destroy it by perforation and flattening and bury in an approved dump site. Prevent contamination of food, feedstuffs, drinking water and eating utensils.

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Issued by: Arysta LifeScience South Africa
Poisons Helpline 0861 555 777

Phone: 031 514 5600
Spillage Helpline (HAZMAT) 0800 147 112



SECTION 14 - TRANSPORT INFORMATION

UN NUMBER:	3351
Road Transport ADR/RID:	
Class:	6.1
Subsidiary Group:	3.3
Packaging group:	III
Shipping name:	Pyrethroid Pesticide, Liquid, Toxic, Flammable (cypermethrin 200 g/ℓ)
Maritime Transport IMDG/IMO:	
Class:	6.1
Subsidiary Group:	3.3
Packing group:	III
Shipping name:	Pyrethroid Pesticide, Liquid, Toxic, Flammable (cypermethrin 200 g/ℓ)
Considered a marine pollutant.	

SECTION 15 - REGULATORY INFORMATION

Symbol :	Xn, N
Indication of danger :	Harmful, Environmentally Hazardous Substance
Risk phrase(s):	
R 10	Flammable
R 20/21/22	Harmful by inhalation, in contact with skin and if swallowed.
R 36/37/38	Irritating to eyes, respiratory system and skin.
R 43	May cause sensitisation by skin contact.
R 50	Very toxic to aquatic organisms.
R 53	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 13	Keep away from food, drink and animal feedingstuffs.
S 16	Keep away from sources of ignition – no smoking.
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.

SECTION 16 - OTHER INFORMATION

Packaging:

Packed in 50, 100, 200, 500 mℓ & 1, 5 & 10 ℓ fluorinated 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.

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