

**MATERIAL SAFETY DATA SHEET**

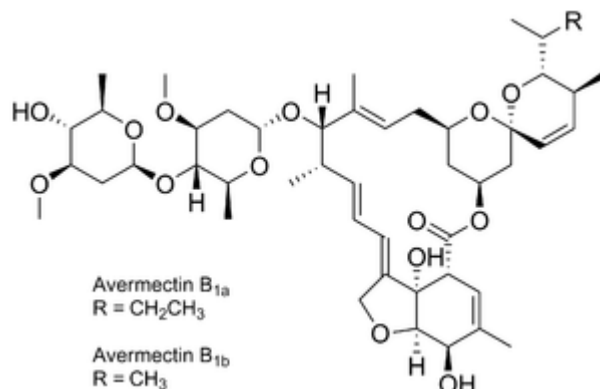
**AGRIANCE**

P.O. Box 8213,  
Netanya, 42293, Israel.

In case of emergency, Call  
972-9-865-6454

**1. PRODUCT IDENTIFICATION**

Product Name : **VERKOFAL**  
Signal Word : Caution  
Active Ingredient : Mixture of Abamectin (BSI, draft E-ISO, ANSI); and Abamectine ((f) draft F-ISO)  
(%) :  
Chemical Name : A mixture of avermectins containing primarily Avermectin B<sub>1a</sub> (≥80%) and Avermectin B<sub>1b</sub> (≥20%)  
Chemical Class : Insecticide/Miticide  
Empirical Formula: C<sub>48</sub>H<sub>72</sub>O<sub>14</sub> (avermectin B<sub>1a</sub>); C<sub>47</sub>H<sub>70</sub>O<sub>14</sub> (avermectin B<sub>1b</sub>)  
Structural Formula:



**2. COMPOSITION / INFORMATION ON INGREDIENTS**

Components	CAS No.	Percentage	R Phrases
Abamectin	71751-41-2	1.8% w/v min	R10-22-36/38-50

**3. HAZARDS IDENTIFICATION**

**3 HAZARD IDENTIFICATION**

- 3.1. **Main Exposure Hazard:**  
Exposure results in moderate irritation to the eyes and skin. A skin sensitization (allergic) reaction may occur in sensitive individuals.
- 3.2. **Potential Hazard:**  
**Inhalation:**

Short term exposure:	Harmful if inhaled.
Long term exposure:	No information is available
<b>Skin Contact:</b>	
Short term exposure:	Mild irritation.
Long term exposure:	No information is available
<b>Eye Contact:</b>	
Short term exposure:	Irritation.
Long term exposure:	No information is available
<b>Ingestion:</b>	
Short term exposure:	Potentially hazard if swallowed.
Long term exposure:	No information on significant adverse effects.

#### 4. FIRST AID MEASURES

##### FIRST AID:

**Ingestion:** DO NOT INDUCE VOMITING. If victim is fully conscious, give a large quantity of water to drink and get medical attention. Never give anything by mouth to an unconscious person.

**Inhalation:** If inhaled : Move person to fresh air. If person is not breathing, call an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call poison control center or doctor for further treatment advice.

**Eye Contact:** Immediately rinse eyes with a large amount of running water. Hold eye lids apart to rinse the entire surface of the eyes and lids. Do not apply any medicating agents except on the advice of a physician.

**Skin Contact:** Wash with plenty of soap and water, including hair and under fingernails. Do not apply any medicating agents except in the advice of a physician. Remove contaminated clothing and decontaminate prior to use.

##### Advices to Medical Treatment:

If toxicity from exposure has progressed to cause severe vomiting, the extent of resultant fluid and electrolyte imbalance should be gauged. Appropriate supportive parenteral fluid replacement therapy should be given, along with other required supportive measures (such as maintenance of blood pressure levels) as indicated by clinical signs, symptoms and measurements. In severe cases, observations should continue for at least several days until clinical condition is stable and normal. Since abamectin is believed to enhance GABA activity in animals, it is probably wise to avoid drugs that enhance GABA activity (barbiturates, benzodiazepines, valporic acid) in patients with potentially toxic abamectin exposure.

##### Antidote:

There is no need for specific antidote if this product is ingested.

#### 5. FIRE FIGHTING MEASURES

##### 5.1 Extinguishing Media:

Use dry chemical, foam, or CO<sub>2</sub> extinguishing media.

##### 5.2 Fire fighting instructions:

Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and

equipment until  
decontaminated. This product is a NFPA Class IIIA Combustable Liquid.

**5.3 Special Protective Equipment for Fire-Fighters:**

Wear full protective clothing and self-ontained breathing apparatus.

**5.4 Hazardous Heating Decomposed Products:**

Thermal decomposition products may include, but are not limited to, carbon monoxide and carbon dioxide.

**6. ACCIDENTAL RELEASE MEASURES**

**6.1 Personal Precautions:**

Wear chemical goggles or a full-face shield, rubber gloves, rubber boots, long-sleeved shirt, long pants, head covering, and a NIOSH-approved chemical cartridge pesticide respirator with organic vapor pre-cartridges or a supplied-air respirator.

**6.2 Environmental Precautions:**

Do not allow wash water to contaminate water supplies.

**6.3 Methods for Cleaning Up:**

For spills, cover with an absorbent material such as pet litter. Sweep up, and place in an approved chemical container. Wash the spill area with water containing a strong detergent, absorb with pet litter or other absorbent material, sweep up and place in a chemical container. Seal the container and handle in an approved manner. Flush the area with water to contaminate water supplies.

**7. HANDLING AND STORAGE**

**7.1 Handling:**

Prevent eating, drinking, tobacco usage, and cosmetic application in areas where there is a potential for exposure to the material. Always wash thoroughly after handling.

**7.2 Storage:**

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area.

**8. EXPOSURE CONTROL/PERSONAL PROTECTION**

**8.1 Exposure Limits:**

**OSH/PEL :** Not established.

**ACOM/TLV:** Not established.

**8.2 Occupational Exposure Controls:**

**Respiratory protection:** To avoid breathing mist or vapors, wear a NIOSH-approved chemical cartridge pesticide respirator with organic vapor pre-cartridges or supplied-air respirator.

**Hand protection:** Wear rubber gloves.

**Eye protection:** To avoid eye contact, wear chemical goggles or a full-face shield.

**Skin Protection:** To avoid skin contact, wear rubber gloves, rubber boots, long sleeved shirt, long pants and a head covering.

### 8.3 Environmental Exposure Controls:

No information available.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance :</b>	Light amber liquid
<b>Odor</b>	Like-substituted benzene odor
<b>Boiling Point</b>	149.2°C
<b>Melting Point</b>	Not applicable
<b>Vapor Pressure</b>	<0.01mPa (25°C) (Tech.)
<b>Specific Gravity</b>	0.935 g/ml (20°C)
<b>Solubility</b>	Miscible with water
<b>pH</b>	2.86 (1% solution)
<b>Log P<sub>ow</sub></b>	4.4 ± 0.3 (pH 7.2, room temperature) (Tech.)
<b>Flammability:</b>	Flash point = 36.0°C
<b>Explosive Properties:</b>	Non-explosive

## 10. STABILITY AND REACTIVITY

### 10.1 Stability :

Stable under the normal temperature and pressure.

### 10.2 Conditions to Avoid :

The product is not corrosive to aluminum, iron, and steel, but corrosive to copper and brass.

### 10.3 Materials to Avoid :

The product is not compatible with alkaline material, and is corrosive to copper and brass.

### 10.4 Hazardous Polymerization :

Will not occur.

## 11. TOXICOLOGICAL INFORMATION

### 11.1. Acute Toxicity:

**Acute Oral LD<sub>50</sub>** LD<sub>50</sub> for rats 316 (male) and 271 (female) mg/kg

**Acute dermal LD<sub>50</sub>** LD<sub>50</sub> for rats > 2150 mg/kg

**Acute Inhalation LC<sub>50</sub>** LC<sub>50</sub> (4 hr) for rats 25.43 mg/L

**Eye Irritation:** Moderately irritating (Rabbit)

**Skin Irritation:** Moderately irritating (Rabbit)

**Skin sensitization:** Non-sensitizing (Guinea pig)

### 11.2 Chronic Toxicity: (Abamectin)

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.

Abamectin was not carcinogenic in rats or mice fed the maximum tolerated doses. The rats were fed dietary doses of 0.75, 1.5, or 2 mg/kg/day for 24 months, and the mice were

fed 2, 4 or 8 mg/kg/day for 22 months. These represent the maximum tolerated doses.

**11.3 Reproduction :** (Abamectin)

In rats the pup toxicity NOEL was 0.12 mg/kg/day. At 0.40 mg/kg/day, there were increased stillbirths, decreased pup viability, decreased lactation, and decreased pup weights.

**11.4** Reproductive test on rats with Abamectin could be considered to be negative.

**Teratogenicity:** (Abamectin)

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.

**11.5**

**Mutagenic Toxicity:**

Ames test, *Salmonella typhimurium* (TA97a, TA98, TA100 and TA1535) with or without metabolic activator. The product was tested in five concentrations: 0.001, 0.01, 0.1, 1.0 and 5.0 mg/plate. The results indicated Abamectin 1.8% EC did not exhibit mutagenic activity.

Mouse bone marrow micronucleus assay was carried out at the dose of 243.75 mg/kg bw. The results indicated that Abamectin 1.8% EC produced no evidence of mutagenic activity.

**12. ECOLOGICAL INFORMATION**

**12.1 Ecotoxicity :**

Bird Toxicity:	LD <sub>50</sub> for Japanese quails ( <i>Coturnix coturnix japonica</i> ) 1659.59 mg/kg (male) and 1525.24 mg/kg (female)
Fish Toxicity:	LD <sub>50</sub> (96-hr) for carp ( <i>Cyprinus carpio</i> ) 2.145 mg/L.
Dephnia toxicity:	EC <sub>50</sub> (48-hr) for <i>Daphnia magna</i> 10.08 µg/L.
Alga toxicity:	EC <sub>50</sub> (96-hr) for algae ( <i>Selenastrum carpicomutum</i> ) 6.88 mg/L
Bee Toxicity	Contact LD <sub>50</sub> (48-hr) of Abamectin 1.8% EC for bee ( <i>apis mellifera</i> ) 38.04 µg/bee.

**12.2 Mobility:** Binds tightly to soil, so mobility is low.

**12.3 Persistence and Degradability:** Rapid degradation by soil microorganisms in soil.

**12.4 Bioaccumulative Potential:** No bioaccumulation in fish.

**12.5 Other Adverse Effects:** No information is available.

**13. DISPOSAL CONSIDERATION**

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

**14. TRANSPORT INFORMATION**

**Maritime Transport IMDG**

Proper shipping name	:	Pesticides, Liquid, Toxic, N.O.S., (Abamectin)
UN number	:	2902
Class	:	6.1
Packing group	:	III
Marine pollutant	:	No

## 15. REGULATORY INFORMATION

**EC Number (EINECS):**

265-610-3

**Canadian Regulations:**

WHMIS Classification : Not determined

**CERCLA Reportable Quantity (RO):**

None

**RCRA Classification:**

Not Applicable

**TSCA Status**

Exempt from TSCA

## 16. OTHER INFORMATION

**Hazardous Rating Systems:**

**NFPA:** Health= 2 /Flammability=2 /Reactivity=0

**EC Classification (Assigned):** (According to Directive 2001/60/EC)

Xi Irritant

Xn Harmful

N Dangerous for the Environment

**EEC Symbol:**



**Risk phrase**

R10 Flammable

R22 Harmful if swallowed

R36/38 Irritating To eyes and skin.

R50 Very toxic to aquatic organisms

**Safety Phrase:**

S13 Keep away from food, drink and animal feedingstuffs.

S24 Avoid contact with skin.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical Advice.

S35 This material and its container must be disposed of in a safe way.

S37/39 Wear suitable gloves and eye/face protection

S57 Use Appropriate containment to avoid environmental contamination.

S60 This material and its container must be disposed of as hazardous waster.

S61 Avoid release to the environment. Refer to special instructions/safety data sheet.

Although the information in the MSDS was obtained from sources which we believe to be reliable, it cannot be guaranteed. In addition this information may be used in a manner beyond our knowledge or control. The information is therefore provided for advice purposes only, without any representation or warranty express or implied