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UPDATED BY: U Du Pisanie  
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## MATERIAL SAFETY DATA SHEET AVIGARD

### 1. COMPANY DETAILS:

**Name:** Avima (Pty) Ltd  
**Address:** No. 18 Aschenberg Street  
Chamdor  
Krugersdorp  
**Tel. Nr.:** (011) 769 1300  
**Fax Nr.:** (011) 762 5712  
**Emergency Tel Nr.:** 083 326 3581 / 082 823 4473

### 2. PRODUCT IDENTIFICATION:

**Trade Name:** Avigard 500 g/ litre EC  
**Chemical Family:** Organophosphate  
**Chemical Name:** Diethyl (dimethoxythiophosphorylthio)succinate  
**Molecular Formula:**  $C_{10}H_{19}O_6PS_2$   
**Molecular weight:** 330.4  
**C.A.S. Nr.:** [121-75-5]  
**UN Number:** 3017

### 3. COMPOSITION:

**Hazardous Components:** Malathion 50 %  
Aromatic / Aliphatic mixture 45.5 %

#### 4. PHYSICAL AND CHEMICAL CHARACTERISTICS:

<b>Appearance:</b>	Clear, yellow liquid.
<b>Odour:</b>	Mercaptan odour.
<b>Boiling Point: (@760 mm Hg):</b>	Approximately 113°C (for aromatic /aliphatic mixture)
<b>Melting Point:</b>	< - 40 °C (for aromatic /aliphatic mixture)
<b>Vapor Pressure: (@ 30°C)</b>	36 mmHg (for aromatic /aliphatic mixture)
<b>Vapor Density: (air = 1)</b>	1.3 (for aromatic /aliphatic mixture)
<b>Specific Gravity:</b>	1.007 kg /ℓ @ 20 °C (for formulation)
<b>Solubility:</b>	Emulsifies in water.

#### 5. FIRE AND EXPLOSION HAZARD:

<b>Flash point (test method):</b>	9°C (closed cup) for solvent mixture
<b>Flammable limits in air (% by vol.):</b>	Lower: 1.2% Upper: 7% (both for solvent mixture)
<b>Autoignition Temp.:</b>	500°C (for solvent mixture)
<b>Decomposition Temp.:</b>	Not available For Technical: Slow decomposition above 49 °C

TYPE OF HAZARD / EXPOSURE	ACUTE HAZARDS / SYMPTOMS	PREVENTION	FIRST AID / FIRE FIGHTING
<b>FIRE</b>	Combustible. Formulation contains organic solvent that is slightly flammable when exposed to heat /flame. Gives off irritating or toxic fumes (or gases) in a fire.	No open flames	Use water, foam, dry chemical or CO <sub>2</sub> to extinguish fires.
<b>EXPLOSION</b>	Combustible. Formulation contains organic solvent that is slightly flammable when exposed to heat /flame. Gives off irritating or toxic fumes (or gases) in a fire.	No open flames	Use water, foam, dry chemical or CO <sub>2</sub> to extinguish fires.

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<b>FIRE CONTROL PRECAUTIONS</b>	<p>Wear self-contained, positive pressure breathing apparatus and full fire fighting protective clothing.</p> <p>Keep unnecessary people away. Use as little water as possible. Prevent pesticide run-off. Use spray or fog –solid stream may cause spreading.</p> <p>Do not contaminate personnel or equipment, or handle broken packages or containers without protective clothing.</p> <p>Decontaminate emergency personnel with soap and water before leaving the fire area.</p> <p>Avoid breathing dusts, vapors and fumes from burning materials. Controls run-off water –if water enters a drainage system inform Local Authorities.</p> <p>Fight fire from maximum distance.</p>
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**OSHA PEL:** 10 mg/m<sup>3</sup>  
**ACGIH TLV:** 10 mg/m<sup>3</sup>  
**NTP/IARC/OSHA Carcinogen:** No

## 6. REACTIVITY DATA:

**Stability:** Stable  
Can react with oxidizing materials **OR**  
(H<sub>2</sub>SO<sub>4</sub> + HNO<sub>3</sub>), N<sub>2</sub>O<sub>4</sub>, AgCl O<sub>4</sub>

**Conditions to avoid:** Storage at 50 –115 °C leads to non-hazardous decomposition. Heating at > 150 °C cause rapid decomposition. Reactivity with strong base may generate excessive heat.

**Incompatible materials:** Strong alkali's and strong oxidizers.

**Hazardous decomposition products:** Thermal decomposition may produce hydrogen sulfide, methyl mercaptan dimethyl sulfide, carbon oxide, sulfur oxide, phosphorous oxide.

## 7. WARNINGS

Poisonous by contact, swallowing and inhalation.  
Keep out of reach of children and pets.  
Flammable liquid.

## 8. HEALTH HAZARD DATA

TYPES OF HAZARD / EXPOSURE	ACUTE HAZARDS / SYMPTOMS	PREVENTION	FIRST AID
<b>EXPOSURE</b>		PREVENT GENERATION OF MISTS! AVOID EXPOSURE OF ADOLESCENTS AND CHILDREN. Administer a Cholinesterase blood-testing program.	CASES CONSULT A DOCTOR!! Note to Physician: Product may inhibit Acetyl Cholinesterase activity. Atropine is antidotal. Pralidoxime chloride (2 – PAM; Protopam chloride) may be effective as an adjunct to Atropine.
<b>INHALATION</b>	Headache, dizziness, pupillary constriction, muscle cramps, excessive sweating, laboured breathing, unconsciousness. The symptoms of acute intoxication do not become manifest until before 30 min. /1 –2 hours.	Area must be well ventilated. Wear a pesticide cartridge respirator when exposed to product.	Fresh air, rest. Half – upright position. Refer for medical attention.
<b>SKIN</b>	Headache, dizziness, pupillary constriction, muscle cramps, excessive sweating, laboured breathing, unconsciousness. The symptoms of acute intoxication do not become manifest	Wear rubber gloves. Boots and an apron or impermeable covering should be worn where splashing could occur. Wear a long sleeve or shirt and full-length pants and	Remove contaminated Clothes. Rinse and then wash skin with water and soap. Refer for Medical attention.

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	until before 30 min. /1 –2 hours. Irritating to skin. Will cause dermatitis after prolonged exposure.	overall. Shower at the end of the workday and change clothing. Launder clothing before re – use.	
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<b>EYES</b>		Wear chemical goggles to prevent eye exposure.	First rinse with plenty of water for at least 15 minutes (remove contact lenses if easily possible), then take to a doctor.
<b>INGESTION</b>	Abdominal cramps, diarrhea, nausea, vomiting, headache, dizziness, pupillary constriction, muscle cramps, excessive sweating, laboured breathing, and unconsciousness. The symptoms of acute intoxication do not become manifest until before 30 min. /1 –2 hours.	Do not eat, drink or smoke during work. Wash hands before eating or smoking.	Rinse mouth. Rest. Refer for medical attention.

## 9. PRECAUTIONS FOR SAFE HANDLING AND USE

### SPILLAGE DISPOSAL

Wear protective clothing, dike spill area to prevent product release, absorb with an inert absorbent material, (e.g. Granular clay or sawdust), and shovel /sweep into covered containers for proper disposal. Rinse spill area and tools several times with a solution of 85 % water, 10 % bleach and 5 % isopropyl alcohol. Contain and absorb rinsate with inert absorbents and place into the same disposal container as spill residues. Small spills to the soil

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can be shoveled directly into disposal containers. If spill is to a water body, notify legal authorities immediately.

## 10. WASTE DISPOSAL

Product should be utilized completely to avoid disposal. If not possible, handle with care and dispose in a safe manner according to local regulations regarding waste management. Empty containers with some product residues, should not be re-used. Triple rinse and add rinsing to spray tank. Render container unusable by crushing and /or puncturing, and dispose in a safe manner.

## 11. PRECAUTIONS IN STORAGE

Do not contaminate water, food, or feed by storage or disposal. Store in a secure, dry, well-ventilated separate room, building/covered area. Keep away from sources of ignition and protect from exposure to fire and heat. Separate from strong oxidants, food and foodstuffs.

## 12. PRECATIONS IN HANDLING

Do not breathe in fumes of spray mist. Wash with soap and water after skin contact. Do not eat, drink or smoke whilst applying. Prevent drift onto other edible crops and fish ponds. Prevent contamination of foodstuffs, food utensils and drinking water. Destroy empty container and do not re-use for any purpose.

## 13. TOXICOLOGICAL INFORMATION

The substance is very toxic to aquatic organisms. This substance may be hazardous to the environment; special attention should be given to honeybees. Toxic to fish and wildlife. Avoid release to the environment in circumstance different to normal use.

## 14. LD 50 VALUES OF ACTIVE INGREDIENT

<b>Acute Toxicity:</b>	
<b>Oral LD50 (rat)</b>	1375-5500
<b>Dermal LD50 (rat)</b>	> 2000 mg/kg
<b>Inhalation LC50 (rat)</b>	(4h) > 5.2 mg/l

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## 15. HANDLING AND STORAGE:

**Hazardous description:** Organophosphorous pesticides, liquid, toxic, flammable, marine pollutant.

**Label:** Keep away from food and foodstuffs.  
Flammable

**Class /Division:** 6.1

**UN No.:** 3017

**Packing Group:** III  
Xn Symbol

## 16. ENGINEERING CONTROLS:

No engineering controls are required in the normal use of this product.