



# MATERIAL SAFETY DATA SHEET

## MALASOL EC

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### 1. PRODUCT AND COMPANY IDENTIFICATION

**TRADE NAME:** MALASOL EC

**SUPPLIER:** EFEKTO

PO BOX 652147

BENMORE

2010

**TEL No.** 0861 333586 (office hours)

**EMERGENCY TELEPHONE NUMBERS:**

**SPILLAGES:** 082 4468946

**POISONINGS:**

**Poisons Information Help Line: 0861 555 777** (all hours)

**Griffon Poison Centre** 082 446 8946

**Use:** An emulsifiable insecticide concentrate, with contact and stomach action.

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### 2. HAZARDS IDENTIFICATION

- Dangerous for the environment
- Flammable
- Harmful.

This compound inhibits cholinesterase enzyme activity in the nervous tissue.

**Likely routes of exposure:**

Skin and eye contact, ingestion and inhalation.

**Ingestion:** Harmful by ingestion.

**Inhalation:** Harmful by inhalation.

**Skin contact:** This product is a mild irritant.

**Eye contact:** This product is a mild irritant.

**Carcinogenicity:** Not carcinogenic.

**Mutagenicity:** Not mutagenic.

**Neurotoxicity:** Not a neurotoxin.

**Reproductive /Teratogenicity:** Not teratogenic.

**Symbol:** Xn; N

**Indication of danger:** Harmful; Dangerous for the environment

**Risk phrases:** R10, R20/21; R50/R53



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**UN No.:** 3017

**Class:** 3

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Active ingredients:

Active ingredients.	CAS No.:	EC No.:
Mercaptothion 500 g/l	121-75-5	204-497-7
Inerts Balance xylene	1330-20-7	

**Chemical Name:** diethyl (dimethoxythio-phosphorylthio)succinate; *S*-1,2-bis(ethoxycarbonyl)ethyl *O,O*-dimethyl phosphorodithioate (IUPAC)

**Chemical Family:** Organophosphate

**Chemical Formula:** C<sub>10</sub>H<sub>19</sub>NO<sub>6</sub>PS<sub>2</sub>

**NIOSH/RTECS No.:** -

### 4. FIRST-AID MEASURES

Effects of mercaptothion poisoning are similar to those observed with other organophosphates, except that larger doses are required to produce them.

Symptoms of exposure to the product include: nausea, headache, tiredness, giddiness, blurred vision and pupillary constriction. Depending on severity of poisoning these symptoms become worse with the onset of vomiting, abdominal pain, diarrhea, sweating and salivation. Confusion, ataxia, slurred speech, loss of reflexes are some of the central nervous system effects that may lead to misdiagnosis of acute alcoholism.

#### Inhalation:

Remove source of contamination or move victim to fresh air. Keep affected person warm and at rest. Supply oxygen if necessary. Treat symptomatically and supportively.

**Seek medical advice immediately.**

#### Skin contact:

Remove contaminated clothing, shoes and leather goods. Gently wipe of excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. Seek medical advice if necessary. Persons who become sensitised may require specialised medical management with anti-inflammatory agents.

#### Eye contact:

Immediately flush eyes with gently flowing cold water or saline solution for 20 minutes, holding the eyelid(s) open. **Seek medical attention immediately.**

#### Ingestion:

Have victim rinse mouth thoroughly with water. Do not induce vomiting, due to the aromatic solvent. Seek medical advice immediately.

**Advice to physician:**



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**Atropine** must be administered as early as possible and could save lives, if given in time and in an adequate dosage. Patients with organophosphate poisoning require amounts of atropine far in excess of doses usually employed in medical practice.

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### 5. FIRE-FIGHTING MEASURES

**Extinguishing agents:**

Extinguish small 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. Contain water used for fire-fighting for later disposal.

Avoid the accumulation of polluted run-off from the site.

**Fire fighting:**

Remove spectators from surrounding area. Remove container from fire area if possible. Fight fire from maximum distance.

For massive fire, use unmanned hose holder or monitor nozzles. Contain fire control agents for later disposal.

Use a recommended extinguishing agent for the type of surrounding fire. Water can be used to cool unaffected containers but must be contained for later disposal. Avoid inhaling hazardous vapours. Keep upwind.

**Special Hazards:**

Fire may produce irritating or poisonous mists (hydrogen sulfide, carbon oxides and sulfur oxides) or other products of combustion.

**Personal protective equipment:**

Fire-fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

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### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions:**

Do not inhale fumes. Ventilate area of spill or leak, especially confined areas. Avoid contact with skin, eyes or clothes. For personal protection see Section 8.

**Environmental precautions:**

Do not allow entering drains or watercourses. When the product contaminates public waters, inform appropriate authorities immediately in accordance with local regulations.

**Occupational spill:**

For **small spills**, soak up with sand or suitable non-combustible absorbent material, place into containers for subsequent disposal. Thoroughly wash body areas, which come into contact with the product. Avoid runoff to sewer as it may cause fire/explosion. Do not allow the product to come in contact with water systems. For **large spills** contact the manufacturer. Contain liquid far ahead of spill. Contain spillage and contaminated water for subsequent disposal. Do not flush spilled material into drains. Keep spectators away and upwind.

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### 7. HANDLING AND STORAGE

**Handling:**



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Remove sources of naked flame or sparks. Harmful by inhalation or if swallowed. Avoid contact with eyes and skin and inhalation of fumes. 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:**

Store in its original container in isolated, dry, cool (avoid temperatures above 40°C) and well-ventilated area. Avoid cross contamination with other pesticides and fertilizers. Keep under lock and key out of reach of unauthorized persons, children and animals. Store away from incompatible substances. Not to be stored next to foodstuffs and water supplies. Local regulations should be complied with.

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### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Occupational exposure limits:**

**Malathion:**

10 mg/m<sup>3</sup> OSHA TWA (total dust) (skin)

10 mg/m<sup>3</sup> ACGIH TWA (skin)

15 mg/m<sup>3</sup> NIOSH

**Engineering control measures:**

It is essential to provide adequate ventilation. Ensure that control systems are properly designed and maintained. Only spark –resistant equipment should be used. 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 equipment including approved respiratory protection.

**Respirator:**

An approved full-face respirator suitable for protection from mists of pesticides is required. Limitations of respirator use specified by the approving agency and the manufacturer must be observed.

**Clothing:**

Employee must wear appropriate protective (impervious) clothing and equipment to prevent skin contact with the substance.

**Gloves:**

Employee must wear appropriate chemical resistant protective gloves to prevent contact with this substance.

**Eye protection:**

Employee must wear splash-proof safety goggles and face-shield to prevent contact with this substance.

*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.

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### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Clear to liquid with

**Colour:** Slightly yellow

**Odour:** Mercaptan odour



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**Flammability:** Flammable

**Explosive properties:** No information currently available.

**Flash point:** 32 °C

**Oxidising properties:** No information currently available.

**pH:** Not applicable.

**Relative density:** 1,030 g/m<sup>l</sup> at 20°C

**Solubility in water:** This product emulsifies in water.

**Partition-coefficient in n-octanol / water:**  $K_{ow}$  ( $\log P_{ow}$ ) = 2.75(data for active substance).

### 10. STABILITY AND REACTIVITY

**Storage stability:**

Stable for up to 2 years under normal warehouse and field conditions. Product is decomposed by acids and alkalis.

**Incompatibility:**

The product is compatible with most other common pesticides but incompatible with alkaline materials such as Bordeaux mixture or Lime Sulphur.

Do not physically mix concentrate directly with other herbicides or pesticide concentrates; always dilute first.

**Hazardous decomposition:**

Product undergoes decomposition at high temperatures. Avoid heating above ambient temperature. Toxic fumes (hydrogen sulfide, carbon oxides and sulfur oxides) may be released when the product decomposes on heating.

### 11. TOXICOLOGICAL INFORMATION

**Based on Technical**

**Acute oral LD<sub>50</sub>:** 1375 - 2800 mg/kg body weight in rats.

**Acute dermal LD<sub>50</sub>:** 4100 mg/kg in rabbits.

**Acute inhalation LC<sub>50</sub> (4 h):** 10 mg/litre air (Cat)

**Acute skin irritation:** This product is a mild irritant.

**Acute eye irritation:** This is a mild irritant to the eyes.

**Dermal sensitisation:** Mild sensitizer.

**Carcinogenicity:** Studies did not detect carcinogenic activity. No human information available.

**Teratogenicity / Reproductive hazard:** Studies did not detect any tetragenetic effects. No human information available.

**Mutagenicity:** Studies did not indicate that any mutagenic activity.

### 12. ECOLOGICAL INFORMATION

**Fish:**

Highly toxic to fish. Mercaptothion is highly toxic to aquatic invertebrates and to the aquatic stages of amphibians.

LC<sub>50</sub>: blue gill sunfish; 0,1mg/l

**Daphnia:**

Very toxic to *Daphnia magna*. LC<sub>50</sub> Daphnia (water flea) 0.9 µg/l/50 hr



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**Bees:**

Toxic to bees.

LD<sub>50</sub> Bee topical 0, 710 µ/bee

**Degradability: (Technical material)**

This product can be classified as non-persistent.

Biodegradation in soil is rapid with 80-95% biodegradation detected in 10 days. The rate of degradation increased with organic matter content, and half-lives in the 1-6 day range.

Biodegradation of 90% in 2 weeks was reported in raw river water.

**Mobility:**

If released to soil, mercaptothion is expected to have very high mobility based upon an estimated Koc of 30.

**Accumulation:**

Will not accumulate in soil.

**ECOTOXICOLOGY:**

**Birds:**

Non-toxic to birds. The reported acute oral LD<sub>50</sub> values are: in mallards, 1485 mg/kg; in pheasants, 167 mg/kg; in blackbirds and starlings, over 100 mg/kg; and in chickens, 525 mg/kg.

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### 13. DISPOSAL CONSIDERATIONS

**Disposal:** On site disposal of the concentrated product is not acceptable. Ideally, the product should be used for its intended purpose. If there is a need to dispose of the product, approach local authorities who hold periodic collections of unwanted chemicals.

**Package product wastes:**

Emptied containers retain vapours and product residues. Triple rinse containers before disposal. Observe all labelled safeguards until container is destroyed. Do not re-use container for any purpose.

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### 14. TRANSPORT INFORMATION

**UN NUMBER:** 1993

**ADR/IRD:**

**Shipping name:** Flammable liquid, n.o.s. (Mercaptothion 500 g/l).

Classification Code: F1

Class: 3

Label: 3

Hazard ID no. 33

**IMG/IMO:**

**Shipping name:** Flammable liquid, n.o.s. (Mercaptothion 500 g/l).

Packaging group: III

Label of class: 3 Marine pollutant

Subsidiary Risk:



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**AIR/IATA:**

**Shipping name:** Flammable liquid, n.o.s. (Mercaptothion 500 g/l).

**Class:** 3  
**Label:** 3 Flammable  
**Packaging group:** III  
**Passenger aircraft:** Y309 (max 10 L)  
**Cargo aircraft:** 309 (max 60 L)  
310 (220 L)  
**Tremcard no:** 30GF1-III

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### 15. REGULATORY INFORMATION

**Symbol :** Xn; N

**Indication of danger:** Harmful; Dangerous for the environment.

**Risk phrases:**

**R10** Flammable  
**R2021** Harmful by inhalation and contact with the skin  
**R 50/53** Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment

**Safety phrases:**

**S 2** Keep out of reach of children  
**S16** Keep away from sources of ignition.  
**S20/21** When using do not eat, drink or smoke.  
**S24** Avoid contact with skin.  
**S25** Avoid contact with eyes.  
**S 60** This material and its container must be disposed of as hazardous waste.  
**S 61** Avoid release to the environment. Refer to special instructions / Safety data sheets.

**National legislation:**

In accordance with the South African National Road Traffic Act, 1996 (Act 93 of 1996), the Fire Brigade Act, 1987 (Act 99 of 1987) and the Occupational Health and Safety Act, 1993 (Act. No. 85 of 1993)

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### 16. OTHER INFORMATION

**Compiled by:** Danie Fourie

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the PRODUCT AS SUCH. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear.

It is the responsibility of persons in receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the



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product. If the recipient subsequently produces formulations(s) containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.

### REFERENCES

- ECB-ESIS (European chemical Information System).
- ADR 2011, Part 3.
- IMDG Code, 2005 Edition, Vol. 2.
- IATA Dangerous goods regulations, Effective 1 January 2011

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**END OF MSDS.**