

DICHLORVOS 1000 EC

SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: DICHLORVOS 1000 EC
Other identifier: /
Recommended use: Insecticide
Restrictions on use: Agriculture

Supplier: Universal Crop Protection (Pty) Ltd.
Co. Reg. No.: 1983/008184/07
 PO Box 801,
 Kempton Park, 1620, South Africa
Telephone: (011) 396 2233
Fax: (011) 396 4666
Website: www.villacrop.co.za

Emergency telephone numbers:
24 Hr Transport / Spill emergency no:
 Envirosure. +27 31 205 4918
 (Hazcall24) +27 86 044 4411
 (Client: Villa Crop Protection)
 Griffon Poison Information Centre +27 82 446 8946
 (Client: Villa Crop Protection)
Poisoning Emergency telephone numbers:
 Griffon Poison Information Centre +27 82 446 8946
 Poisons Information Centre +27 861 555 777
Villa Crop Protection Emergency number:
National Safety, Health and Environmental Manager:
 +27 63 698 0668

2. HAZARDS IDENTIFICATION

UN GHS, Regulation EC 1272/2008 [EU-GHS/CLP] EU & SANS 10234:2008		
Hazard classes	Hazard categories	H-statements
Physical		
Flammable	Flammable liquid 1	H224
Health		
Oral	Acute Toxicity 3 Aspiration Toxicity 1	H301 H304
Dermal	Acute Toxicity 2 Skin Irritation 2 Skin sensitization 1	H310 H315 H317
Eye	Eye Damage 1	H318
Inhalation	Acute Toxicity 1	H330
Reproductive Toxicity	Reproductive Toxicity 2	H361d
STOT RE	Specific Target Organ Repeated Exposure 2	H373
Environment		
Aquatic acute	Aquatic acute 1	H400

The most important adverse effects:
Physiochemical effects: Extremely flammable liquid and vapour.
Human health effects:
 Toxic if swallowed.
 May be fatal if swallowed and enters airways.

Fatal in contact with skin.
 Causes serious eye damage.
 Fatal if inhaled.
 Suspected of damaging the unborn child.
 May cause damage to organs through prolonged or repeated exposure.

Label elements:



Signal word: Danger.
Hazard statements:
 H224: Extremely flammable liquid and vapour.
 H301: Toxic if swallowed.
 H304: May be fatal if swallowed and enters airways.
 H310: Fatal in contact with skin.
 H315: Causes skin irritation.
 H317: May cause an allergic skin reaction.
 H318: Causes serious eye damage.
 H330: Fatal if inhaled.
 H361d: Suspected of damaging the unborn child.
 H373: May cause damage to organs through prolonged or repeated exposure.
 H400: Very toxic to aquatic life.

Precautionary statements:
 P202: Do not handle until all safety precautions have been read and understood.
 P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P233: Keep container tightly closed.
 P260: Do not breathe mist/spray.
 P261: Avoid breathing mist, vapours and spray.
 P262: Do not get in eyes, on skin, or on clothing.
 P264: Wash skin and eyes thoroughly after handling.
 P270: Do not eat, drink or smoke when using this product.
 P271: Use only outdoors in a well-ventilated area.
 P273: Avoid release to the environment.
 P280: Wear impervious rubber gloves and chemical safety goggles.
 P284: In case of inadequate ventilation wear respiratory protection.
 P301+P310: IF SWALLOWED: Immediately call a POISON CENTER.
 P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [shower].
 P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P308+P313: If exposed or concerned: Get medical attention.

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P310: Immediately call a POISON CENTER.
 P312: Call a poison centre if you feel unwell.
 P330: Rinse mouth.
 P331: Do NOT induce vomiting.
 P333+P313: If skin irritation or rash occurs: Get medical advice.
 P361+P364: Take off immediately all contaminated clothing and wash before reuse.
 P370+P378: In case of fire: Use carbon dioxide, dry powder, or alcohol-resistant foam for small fires. For larger fires, use water spray, fog or standard foam to extinguish.
 P391: Collect spillage.
 P403+P233: Store in a well-ventilated place. Keep container tightly closed.
 P403+P235: Store in a well-ventilated place. Keep cool.
 P405: Store locked up.
 P501: Dispose of contents/container in accordance with local regulations.
Other hazards:
 None known.
Toxicity:
 Classification according to GHS: Category 1
 Classification according to WHO: Group Ib
 Classification according to GPIC: Category Ib

Toluene	108-88-3		Flammable liquid 2 (H225) Skin Irritation 2 (H315) Aspiration Toxicity 1 (H304) Specific Target Organ Toxicity Single Exposure 3 (H336) Specific Target Organ Toxicity Repeated Exposure 3 (H373) Reproductive Toxicity 2 (H361d)
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3. COMPOSITION / INFORMATION ON INGREDIENTS

Substance / Mixture: Mixture

Composition:

Chemical name	CAS	Conc. (m/v or m/m %)	Classification EC 1272/2008
Dichlorvos	62-73-7	79% m/m (1000 g/l)	Acute Toxicity 3 (H301) Acute Toxicity 3 (H311) Skin Sensitization 1 (H317) Acute Toxicity 2 (H330) Aquatic Acute 1 (H400)
Emulsion AG/CAL 70	84989-14-0	< 10% m/m	Skin Irritation 2 (H315) Eye Damage 1 (H318) Aquatic Chronic 3 (H412)
Xylene	1330-20-7	< 15% m/m	Flammable liquid 3 (H226) Acute Toxicity 4 (H312) Skin Irritation 2 (H315) Acute Toxicity 4 (H332)

4. FIRST AID MEASURES

Remove the victim from the area of exposure. Wash off remaining material with plenty of water. In the event of any complaints or symptoms, avoid further exposure. **Immediately consult a doctor.**
Inhalation: Remove person from contaminated area to fresh air and assist breathing as needed. **Seek medical attention.**
Skin: Remove contaminated clothing, shoes and leather goods. Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. Obtain medical attention if irritation persists. **Seek medical attention.**
Eyes: Flush eyes with clean water for at least 15 – 20 minutes. Lift eyelids to facilitate irrigation. If present, remove contact lenses after 5 minutes and continue rinsing. **Seek medical attention.**
Ingestion: Seek medical attention or call a poison control centre for treatment advice. Do not induce vomiting, this product is classified as an aspiration hazard. Do not give anything by mouth to an unconscious person. If the person is alert, rinse mouth thoroughly with water.
Anticipated acute effects:
 Toxic if swallowed.
 May be fatal if swallowed and enters airways.
 Fatal in contact with skin.
 Causes skin irritation.
 May cause an allergic skin reaction.
 Causes serious eye damage.
 Fatal if inhaled.
 May cause drowsiness or dizziness.
Anticipated delayed effects:
 Suspected of damaging the unborn child.
 May cause damage to organs through prolonged or repeated exposure.
Most important symptoms / effects:
Overexposure effects:
 Symptoms of exposure to the product include: nausea, headache, tiredness, giddiness, blurred vision and pupillary constriction. Depending on severity of poisoning

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these symptoms become worse with the onset of vomiting, abdominal pain, diarrhoea, sweating and salivation. Confusion, ataxia, slurred speech, loss of reflexes are some of the central nervous system effects may lead to misdiagnosis of acute alcoholism.

With **acute systemic absorption**, miosis may not be evident due to sympathetic discharge in response to the hypotension. In addition to rhinorrhea and hyperemia of the upper respiratory tract, respiratory effects consist of "tightness" in the chest and wheezing respiration, caused by the combination of broncho-constriction and increased bronchial secretion. Gastrointestinal symptoms occur earliest after ingestion, and include anorexia, nausea and vomiting, abdominal cramps, and diarrhoea.

With **percutaneous absorption** of liquid, localized sweating and muscular fasciculation in the immediate vicinity are generally the earliest manifestations.

Severe intoxication is manifested by extreme salivation, involuntary defecation and urination, sweating, lacrimation, penile erection, bradycardia and hypotension. The airway should be kept clear to maintain respiration, particularly when the patient is unconscious or has vomited. The mouth and pharynx should be cleared and dentures removed. The jaw should be supported and the patient placed in a face down position with the head down and turned to one side, with the tongue drawn forward. First aid should include, if necessary, mouth-to-nose respiration, cardiac massage and avoidance of injury in patients with trauma.

Advice to physician: 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. The therapeutic objective is to achieve atropinisation, as evidenced by dilation of the pupils, drying secretion, pulse rate of over 120/min and flushing skin. To prevent gastrointestinal absorption in the unconscious that have swallowed this product, perform stomach lavage using bicarbonate solution and activated charcoal.

In **less severe** cases begin with 2 mg atropine intravenously for adults or 0.05 mg atropine/kg body weight for children under 12 years of age and repeat administration of the drug at 15 to 30 min intervals.

In **severe cases** a total atropine dose of 20 to 80 mg in the first hour may be necessary, with repeated drug administration at 3 to 10 min intervals. When signs of atropinisation appear, the dose and frequency of administration should be reduced to a schedule that will maintain full atropinisation for at least 24 hours. Over dosage with atropine is rarely serious, but under dosage may be fatal in poisoning with organophosphorous compounds. In any severe progressive case of poisoning a cholinesterase reactivator e.g. pralidoxime (2PAM), if available, should be administered, preferably within 8h after intoxication. An average dose is 1 g for an adult (up to 50 mg/kg for children), usually given half as a single intramuscular or intravenous injection and the other half

as an intravenous infusion with glucose and or saline. In severe cases this treatment may be repeated in 1 to 2 hours, then at 10 to 12 hour intervals if needed, but not beyond 24 hour, or 48 hour at the most. Pralidoxime should be administered very slowly. If respiration is depressed during or after injection, pulmonary ventilation should be assisted mechanically.

Toxogonin is a more recent cholinesterase reactivator. It can be administered instead of 2PAM at a dose of 250 mg intramuscularly for adults (4 to 8 mg/kg for children) and, if necessary, repeat after 1 to 2 hours.

Diazepam should be included in the therapy of severe cases and whenever convulsions appear. Doses of 5 to 10 mg for adults (2 to 5 mg for children) can be administered intravenously or subcutaneously or per rectum, and repeated as required.

IMPORTANT - Because of their respiratory-depressant effects, **morphine** and similar drugs are **contra-indicated** for patients poisoned with organophosphorous compounds. **Avoid aminoglycosides and succinylcholine**, which have a blocking effect on the neuromuscular junction. **Phenothiazines, reserpine and theophylline** are **contraindicated** in organophosphorous poisoning.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Extinguish small fires with carbon dioxide, dry powder, or alcohol-resistant foam. For larger fires, use water spray, fog or standard foam.

Unsuitable Extinguishing Media: High volume water jet. Use a water jet only to cool heated containers.

Specific hazards: Flammable. May evolve toxic fumes in a fire.

Special fire-fighting procedures: Remove spectators from surrounding area. Isolate the fire area and evacuate all personnel downwind of the fire. Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. Remain upwind of fire. Avoid inhaling hazardous vapours and fumes from burning materials. Remove container from fire area if possible and without risk. Do not use high volume water jet, due to contamination risk. Do not scatter the burning material. Water can be used to cool unaffected containers but must be contained for later disposal. Contain fire control agents for later disposal. Avoid pollution of waterways by run-off from the site.

Personal protective equipment: Wear NIOSH / MSHA approved self-contained breathing apparatus and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Avoid contact with skin and eyes. Do not breathe in spray mist or vapours.

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Ventilate area of spill or leak, especially in contained areas.

Protective equipment: Refer to Section 8 for personal protective equipment to be worn during containment and clean-up of a spill involving this product.

Emergency procedures: Alert firefighting personnel, evacuate unprotected personnel and animals.

Environmental Precautions: Prevent spilled product from entering sewers, waterways or ground water. This product is classified as very toxic to aquatic organisms. Any spillages or uncontrolled discharges into watercourses should be reported immediately to the police and the Department of Water / Environmental Affairs.

Methods and Materials for Containment: Contain spilled product by diking area with sand or earth.

Methods and Materials for Clean-up: Cover contained spill with an inert absorbent material such as sand, vermiculite, earth or other appropriate material. Vacuum, scoop, or sweep up material and place the material into a clean, dry, sealable container. Label containers with the contents and dispose of according to local regulations. Do not place spilled material back in original container. Do not re-use spilled material. Collect washings and add to the drums already collected. Do not flush spilled material or washings into drains or waterways. To decontaminate the spill area, tools and equipment, wash with water and suitable detergent. See section 13 for disposal considerations.

7. HANDLING AND STORAGE

Handling:

Precautions for safe handling: Toxic if swallowed. Avoid contact with skin and eyes. Ensure adequate ventilation during handling and use. **Do not inhale spray mist or vapours, this product is classified as fatal if inhaled.** Do not handle broken packages without protective equipment. Immediately clean up spills that occur during handling. Keep containers closed when not in use. In the case of contact with the product refer to First Aid Measures – Section 4.

General occupational hygiene: Practice good hygiene when using this material. Wash hands before eating, drinking, chewing gum, smoking, using the toilet or applying cosmetics. Worker should shower at the end of each workday. Launder all clothing before it is re-used.

Storage:

Conditions for safe storage: Keep under lock and key and out of reach of unauthorised persons, children and animals. Store in its original, labelled container, tightly closed in an isolated, dry, cool and well-ventilated area. Do not store near heat, open flame, sources of ignition or hot surfaces. Not to be stored next to foodstuffs, feed and water supplies. Avoid cross contamination with other pesticides and fertilisers.

Incompatible substances and mixtures: Refer to product label.

Packaging material: Fluorinated plastic containers and drums.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Permissible concentration

Components	Exposure limits	Type of exposure limit	Source
Xylene, all and mixed isomers	100 ppm 435 mg/m ³	TWA OEL-RL	"Hazardous Chemical Substances Regulations, 1995"

Engineering Controls:

It is essential to provide adequate ventilation; this product is fatal if inhaled. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. Local Exhaust: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OELs or other specified exposure limits. Local exhaust ventilation is preferred. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire and other applicable regulations.

Personal Protective Equipment:

Respiratory Protection: Use a NIOSH approved, air-purifying respirator with cartridges / canisters approved for organic vapours. **This product can be fatal if inhaled.**

Hand Protection: Chemically protective impervious gloves should be used to prevent against skin contact.

Eye Protection: Chemical safety goggles should be used to prevent against eye contact. Contact lenses are not protective eye devices.

Skin and Body Protection: Employees must wear appropriate protective impervious clothing, rubber boots, hat and equipment to prevent repeated or prolonged skin contact with this substance. Do not wear leather clothing.

Emergency eyewash: 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: Light yellow to clear liquid, emusifiable concentrate.

Odour: Mild chemical odour.

Odour threshold: Not available.

pH (1% aqueous dilution): Not available.

Melting point: Not available.

Freezing Point: Not available.

Boiling Point: Not available.

Flash Point: 23 °C.

Flammability: Extremely flammable liquid and vapour.

Upper / lower explosion limits: Not available.

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Vapour Pressure (mm Hg): Not available.
Relative Vapour Density: Not available.
Density / Relative density: S.G. = 1.298
Solubility: Emulsifies in water.
n-octanol / water partition coefficient: Not available.
Auto-ignition temperature: Not available.
Decomposition temperature: Not available.
Viscosity: Not available.

10. STABILITY AND REACTIVITY

Chemical stability: The product is stable for two years at ambient temperature and pressure, under normal storage and handling conditions. Avoid storage under extreme temperatures and conditions. Store below 50 °C, preferably below 30 °C, and not for prolonged periods in direct sunlight.
Reactivity: None known.
Possibility of hazardous reactions: Unlikely to occur.
Conditions to avoid: Extreme heat or exposure to flames.
Incompatible materials: Incompatible with alkaline materials, chinomethionat and dichlofluanid.
Hazardous decomposition products: Alcohols, carbon monoxide and carbon dioxide may form under burning conditions or with incomplete combustion.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY: (GHS & WHO)
Oral LD₅₀ > 90 mg/kg (rat)
Dermal LD₅₀ > 140 mg/kg (rabbit)
Inhalation LC₅₀ (4h) > 0.1 mg/l (rat)
Skin Irritation / Corrosion: Causes skin irritation.
Eye Damage / Irritation: Causes serious eye damage.
Skin Sensitization: May cause an allergic skin reaction.
Respiratory Sensitization: Not available.
Reproductive cell mutagenicity: Not available.
Carcinogenicity: Not available.
Reproductive toxicity: Suspected of damaging the unborn child.
Specific target organ toxicity – single exposure: Not available.
Specific target organ toxicity – repeated exposure: May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard: May be fatal if swallowed and enters airways.
Chronic Effects: Not available.
POTENTIAL ADVERSE EFFECTS:
Inhalation: After inhalation of vapours or aerosols effects appear within minutes: ocular and respiratory effects generally appear first. This includes marked miosis, ocular pain, conjunctival congestion, diminished vision, ciliary spasm and brow ache.
Ingestion: See section 4

12. ECOLOGICAL INFORMATION

This product is considered a marine pollutant.

ECOTOXICITY DATA:

Based on the active ingredient: Dichlorvos

Fish:		
LC ₅₀ (96 h)	Rainbow trout	0.55 mg/l
	Fathead minnows	3.72 mg/l
Daphnia:		
LC ₅₀ (48 h)		0.00019 mg/l
Algae:		
EC ₅₀ (120 h)	<i>Scenedesmus subspicatus</i>	52.8 mg/l
Birds:		
Acute oral LD ₅₀	Bobwhite quail	24 mg/kg
Dietary LC ₅₀ (8d)	Japanese quail	251 mg/kg diet
Bees:		
LD ₅₀ oral		0.29 µg/bee
Worms:		
LC ₅₀ (14d)	<i>Eisenia fetida</i>	14 mg/kg soil

ENVIRONMENTAL EFFECTS

Based on information for the active ingredient

Plants: Rapidly decomposed in plants.

Persistence and degradability: Non-persistent in the environment, with rapid decomposition in the atmosphere. Undergoes hydrolysis in damp media, with the formation of phosphoric acid and CO₂. However G. Keller *et al.* report that soil metabolites are dichloroethanol, dichloroacetic acid and dichloroacetaldehyde; DT₅₀ c. 10 h. In biologically active soils and water systems, DT₅₀ < 1d.

Bio-accumulative potential: Not determined.

Mobility in soil: Not determined.

Other adverse effects: Not determined.

13. DISPOSAL CONSIDERATIONS

Waste: Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product cannot be reused or re-processed. Never pour untreated waste or surplus product 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. Comply with local legislation applying to waste disposal. The product may be taken to a registered waste disposal site or incineration plant.

Container: Emptied containers retain product residues. Do not re-use the empty container for any other purpose. Triple rinse empty containers by inverting the empty container over the spray or mixing tank and allow draining 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 third of that of the container.

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Add the rinsings to the contents of the spray tank before destroying the container in the prescribed manner. Destroy the container by perforating and flattening and dispose of through an approved waste dump site, incineration plant or recycling company. Observe all labelled safeguards until container is destroyed.

14. TRANSPORT INFORMATION

UN Number: 3017
Road Transport ADR / ORD:
 Class: 6.1
 Subsidiary class: 3
 Packaging group: I
 UN Proper Shipping Name: ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point 23 °C.

Maritime Transport IMDG / IMO:
 Class: 6.1
 Subsidiary class: 3
 Packaging group: I
 UN Proper Shipping Name: ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point 23 °C.

Marine pollutant (Y/N): Yes.

Air Transport IATA / ICAO:
 Class: 6.1
 Subsidiary class: 3
 Packaging group: I
 UN Proper Shipping Name: ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point 23 °C.

Special / Environmental Precautions: Wedge drums tightly to avoid movement.

Transport in bulk: Refer to MARPOL 73/78, Annex II and the IBC code.

15. REGULATORY INFORMATION

Safety, health and environmental regulations / legislation for the mixture:

OHSA 1993 Regulations for Hazardous Chemical Substances.

Relevant information regarding restrictions: None.

EU regulation: Regulation EC1272/2008 (EU-GHS/CLP)

Other national regulations: None.

Chemical Safety Assessment carried out? No

16. OTHER INFORMATION

Packaging: Packed in 1, 5, 10, 20, 25 & 100 litres fluorinated plastic containers/drums labelled according to South African regulations and guidelines.

Other hazard statements, abbreviations and explanations:

H225: Highly flammable liquid and vapour.

H311: Toxic in contact with skin.

H312: Harmful in contact with skin.

H332: Harmful if inhaled.

H336: May cause drowsiness or dizziness.

H412: Harmful to aquatic life with long lasting effects.

IATA: International Air Transport Association.

IBC: International Bulk Chemical.

ICAO: International Civil Aviation Organization.

IMDG: International Maritime Dangerous Goods

IMO: International Maritime Organization.

LD₅₀ value: The median lethal dose or the amount of a toxic agent that is sufficient to kill 50 percent of a population within a certain period of time.

OEL/RL: Occupational exposure limit-recommended limit.

TWA: Time-weighted average – The average exposure over a specified period, usually a nominal eight hours.

ST/STEL: Short-term exposure limits.

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 and 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

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For detailed information on revisions, contact the Registration holder.