

# UNIVERSAL DICLOFEN 240 SC

# MATERIAL SAFETY DATA SHEET

## 1. PRODUCT & COMPANY IDENTIFICATION

**Product Name:** DICLOFEN 240 SC  
 Insecticide  
**UN No.:** 3082  
**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](http://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. COMPOSITION/INFORMATION ON INGREDIENTS

**Common Name:** SPIRODICLOFEN  
**Chemical Name:** 3-(2,4-dichlorophenyl)-2-oxo-1-oxaspiro[4.5]dec-3-en-4-yl 2,2-dimethylbutyrate (IUPAC)  
**CAS No.:** [148477-71-8]  
**Chemical Family:** Tetric Acid  
**Chemical Formula:** C<sub>21</sub>H<sub>24</sub>Cl<sub>2</sub>O<sub>4</sub> (Mol. wt.: 411.3)  
**Formulation:** SPIRODICLOFEN: 240 SC  
 Suspension concentrate  
**Use / Mode of Action:** Interferes with mite development.  
**Hazardous Ingredient:**  

Component:	Content (%):
Spirodiclofen	± 240 %
Hazardous Inerts	±12.5 %

**SYMBOLS:** X<sub>n</sub>, N  
**RISK-PHRASE(S):** R 40, 43 & 50

## 3. HAZARD IDENTIFICATION

**Toxicity class:**  
 WHO III (a.i.). Slightly hazardous.  
**Likely routes of exposure:**  
 Skin and eye contact, ingestion and inhalation.  
**Eye contact:**

Non-irritant.  
**Skin contact:**  
 Non-irritant.  
**Inhalation:**  
 >3.0 mg/l  
 Very toxic to aquatic organisms.

## 4. FIRST AID MEASURES AND PRECAUTIONS

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:** Immediately remove source of contamination or move victim to fresh air. If breathing has stopped, perform artificial respiration and administer oxygen. Avoid mouth-to-mouth resuscitation. Keep person warm and at rest. Treat symptomatically and supportively as and when required. **Seek medical advice immediately.**  
**Skin contact:** Remove contaminated clothing, shoes and leather goods immediately. Gently wipe off excess chemical. Wash skin gently and thoroughly with non-abrasive soap or mild detergent and large amounts of water until no evidence of chemical remains (approximately 15 to 20 minutes). Seek medical advice if necessary.  
**Eye contact:** Flush eyes immediately with large amounts of gently flowing cold water or normal saline solution, occasionally lifting upper and lower lids, until no evidence of chemical remains (approximately 15 to 20 minutes). If irritation persists, get medical attention.  
**Ingestion:** Have victim rinse mouth thoroughly with water. **Do not induce vomiting, due to the aromatic solvent. Seek medical advice immediately.** If the person is alert and respiration is not depressed, give large quantity of water to drink. Never give anything by mouth to an unconscious person. Establish and maintain airway. Treat respiratory difficulty with artificial respiration and oxygen. Qualified medical personnel should perform administration of gastric lavage or oxygen.  
**Advice to physician:**  
 No special antidote. Treat symptomatic and give supportive care.

## 5. FIRE FIGHTING MEASURES

**Fire/Explosion hazard:**  
**Flammability:** Non flammable  
**Flash point:** No Flash point  
**Hazards from fire:** If heated release of hydrogen chloride, hydrochloric acid (HCL) and carbon monoxide (CO) is expected.  
**Extinguishing agents:** Extinguish fires with carbon dioxide, dry powder, or alcohol-resistant foam. Water spray can be used for cooling of unaffected stock, but

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

**Firefighting:** Remove spectators from surrounding area. Isolate the fire area and evacuate downwind. Use a recommended extinguishing agent for the type of surrounding fire.

Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. Contain fire control agents for later disposal. Avoid inhaling hazardous vapours and fumes from burning materials. Keep upwind. Remove container from fire area if possible and without risk. Water can be used to cool unaffected containers but must be contained for later disposal.

Dyke fire control water for later disposal. Do not scatter the material. Avoid pollution of waterways.

Do not use high volume water jet, due to contamination risk. Contain water used for fire fighting for later disposal. Avoid the accumulation of polluted run-off from the site.

**Personal protective equipment:** Fire may produce irritating or poisonous vapours or gases (oxides of chlorine and sulphur) or other products of combustion. Fire fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

### 6. ACCIDENTAL RELEASE MEASURES (Spillage)

**Personal precautions:** Avoid contact with skin and eyes. Do not breathe in fumes. For personal protection see Section 8.

**Occupational spill:** Do not touch-spilled material; stop leak if you can do it without risk. Keep out unprotected persons and animals.

**For spills:** Soak up with absorptive material such as damp earth or sand or other suitable non-combustible absorbent material. Place the material into a clean, dry container and cover for subsequent disposal. In situations where product comes in contact with water, contain contaminated water for later disposal. Prevent material from spreading by damming in with absorptive material. Do not flush spilled material into drains. Keep spectators away and upwind.

To decontaminate spill area, tools and equipment, wash with a suitable solution (i.e. organic solvent, detergent bleach or caustic). Add the solution to the drums already collected. Label drums with its content and dispose it in accordance with local regulations.

Open burning or dumping of this material is prohibited.

Do not get water inside containers.

### 7. HANDLING AND STORAGE REQUIREMENTS

**Handling:** Harmful if swallowed. Avoid inhalation and contact with eyes and skin. Use with adequate ventilation. Do not handle broken packages without protective equipment. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Remove clothing immediately if the product gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Seek medical advice.

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.

Worker should shower at the end of each work day. Launder all clothing before it is re-used again.

**Storage:** Store in its original container in dry, cool, well-ventilated area. Do not store near heat, open flame or hot surface. Store in original containers only. Not to be stored next to foodstuffs and water supplies.

Keep out of reach of children, uninformed persons and animals. Do not contaminate other pesticides and fertilizers.

**Storage stability:** Storage temperature 0 to 40 °C. Temperature tolerance -10°C to 40°C.

**Suitable materials:** HDPE (High density polyethylene).

### 8. EXPOSURE CONTROL/PERSONAL PROTECTION

It is essential to provide adequate ventilation. The measures appropriate for a particular worksite 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:

**Respirator:** An approved full-face respirator suitable for protection from spray or mists of pesticides is required. For dust exposure wear, as a minimum, a properly fitted half-face or full-face air-purifying respirator which is approved for pesticides. Respiratory use and selection must be based on airborne concentrations. Limitations of respirator use specified by the approved agency and the manufacturer must be observed.

**Clothing:** Employee must wear appropriate protective (impervious) clothing; overalls or long-sleeves uniform, boots, hat and equipment to prevent repeated or prolonged skin contact with this substance. Do not wear leather clothing.

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

**Eye protection:** The use of chemical resistant goggles or face shield.

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**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.

acid, which is further metabolised. The residue definition comprises **Spirodiclofen enol**.

In plants: In proposed crop plants, there is limited metabolism, which proceeds as in rats. The residue definition comprises of parent **Spirodiclofen** alone  
 In the soil: Dissipation DT<sub>50</sub> in soil 0.5 – 5.5 d; soil metabolism DT<sub>50</sub> (aerobic) 10 – 64 d. No leaching problem (lysimeter study); K<sub>oc</sub> 31037 – 238 000. The major metabolite formed by de-esterification (**Spirodiclofen enol**) is highly mobile; however, modelling studies indicate that significant quantities will not be present in ground water. The residue definition for surface water and sediment comprises **Sprodiclofen** and **Spirodiclofen enol** for soil and groundwater, the definition also includes two further metabolites formed by hydroxylation and reduction of the furan ring, and 2,4-dichlorobenzoic acid.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Suspension concentrate / viscous liquid  
**Colour:** Off-white to beige  
**Odour:** Weak characteristic  
**Relative density:** 1.06g/cm<sup>3</sup> (20 °C)  
**Flash point:** Not applicable  
**Water Solubility:** Miscible  
**Flammability:** Non flammable  
**pH:** 4.0 to 5.5 at 100 %  
**pH of 1%aqueous dilution:** Not applicable  
**Particle size:** 75µm  
**Suspensibility:** 94.2%

### ECOTOXICOLOGY:

#### Birds: Low toxicity to birds

LD<sub>50</sub>: Bobwhite quail >2000 mg/kg (tech.)  
 LC<sub>50</sub> 5-day diet: Bobwhite quail & Mallard ducks  
 > 5000 ppm of feed (tech.)

#### Fish: Very toxic to fish

LC<sub>50</sub> (96 hours): Rainbow trout: 0.035 mg/ℓ

#### Daphnia: Very toxic to fish

LC<sub>50</sub> (48 h): >0.051mg/ℓ

#### Bees: Medium toxicity to bees

LD<sub>50</sub> (oral): >196 µg/bee  
 (Contact): >200 µg/bee

#### Earthworms: Low toxic to worms

LC<sub>50</sub>: for *Eisenia foetida* >1000 mg/kg dry soil

#### Algae:

E<sub>r</sub>C<sub>50</sub> and EC<sub>50</sub>: (96 h) for *Pseudokirchneriella subcapitata*  
 > 0.06mg/ℓ

### 10. STABILITY AND REACTIVITY

**Stability:** Stable under normal storage conditions.  
**Conditions to avoid:** Avoid extreme heat and freezing.  
**Hazardous reactions:** No hazardous reactions when stored and handled according to prescribed instructions.

### 13. DISPOSAL CONSIDERATION

**Pesticide disposal:** Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product cannot be reused or reprocessed. 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. Comply with local legislation applying to waste disposal.

**Container disposal:** 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 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 minimum of a third of that of the container. Add the rinsing to the

### 11. TOXICOLOGICAL INFORMATION

**Formulation (calculated):**  
**Acute oral LD<sub>50</sub>:** >2500 mg/kg  
**Acute dermal LD<sub>50</sub>:** > 4000 mg/kg  
**Acute inhalation LC<sub>50</sub>:** >3.0 mg/ℓ  
**Acute skin irritation:** Non skin irritant  
**Acute eye irritation:** Non eye irritant  
**Sensitization:** Not skin sensitization (guinea pigs)  
**Teratogenicity/Development:** Not teratogenic and it is not a developmental toxicant.  
**Mutagenicity:** No data available for the formulation.  
**Carcinogenicity:** Not carcinogenic  
**ADI:** 0.183 mg/kg b.w.  
**WHO III (a.i.):** Slightly hazardous.

### 12. ECOLOGICAL INFORMATION

In animals: Rapidly absorbed, widely distributed and mostly excreted within 48 h. Metabolism in rats and ruminants involves cleavage of the ester, followed by hydroxylation of the cyclohexane ring. In rats, metabolism continues with cleavage of the enol ring, leading to formation of the cyclohexyl ester of 2,4-dichloromandelic

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contents of the spray tank before destroying the container in the prescribed manner.

Do not re-use the empty container for any other purpose but destroy it by perforation and flattening and bury in an approved dumpsite. Prevent contamination of food, feedstuffs, drinking water and eating utensils.

Comply with local legislation applying to waste disposal.

## 14. TRANSPORT INFORMATION

**UN No.:** 3082  
**Road Transport ADR/IRD:**  
 Class: NR  
 Packing group: NR  
 Shipping name: Environmentally Hazardous Substance, Liquid, N.O.S. (SPIRODICLOFEN: 240 SC)

**Maritime Transport IMDG/IMO:**  
 Class: NR  
 Packing group: NR  
 Shipping name: Environmentally Hazardous Substance, Liquid, N.O.S. (SPIRODICLOFEN: 240 SC)

## 15. REGULATORY INFORMATION

**Symbol:** X<sub>n</sub>, N  
**Indication of danger:** Harmful Substance and Environmentally Dangerous Substance.

**Risk phrases:**  
**R 40** Limited evidence of carcinogenic effect  
**R 43** May cause sensitization by skin contact  
**R 50** Very toxic to aquatic organisms.

**Safety phrases:**  
**S 1/2** Keep locked up and out of the reach of children.  
**S 3/7/9** Keep container tight closed in cool well ventilated place.  
**S 13** Keep away from food, drink and animal feeding stuffs  
**S15** Keep away from heat  
**S 20/21** when using not eat or drink animal feeding stuffs  
**S 29/35** Do not empty into drains; dispose of this material and its container in a safe way  
**S 45** In case of accident or if you feel unwell, seek medical advice immediately  
**S 24/25** Avoid contact with skin and eyes.  
**S 36/37/39** Wear suitable protective clothing, gloves and eye/face protection.  
**S 60** This material and its container must be disposed of as hazardous waste.

## 16. OTHER INFORMATION

**Packing and Labelling:**  
 Packed in 1, 2, 5, 10, 20 and 25 litres plastic containers and labelled according to the 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.

## END OF DOCUMENT

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For detailed information on revisions, contact the Registration holder.