



Insecticide

# DIFLURON 480 SC

Reg. No. L 8810 Act No. 36 of 1947

3: 4/8/2022 – Nov2022

A suspension concentrate chitin deposition inhibitor (CDI) stomach action insecticide for the control of Potato Tuber moth larvae (*Phthorimaea operculella*) in potatoes.

## ACTIVE INGREDIENT

diflubenzuron (benzoyl urea) 480 g/l

GROUP

A15

INSECTICIDE



WARNING

### Hazard Statements:

May be harmful in contact with skin.

Causes eye irritation.

Very toxic to aquatic life.

### Precautionary Statements:

Avoid release to the environment.

Wash hands thoroughly after handling. Do not touch eyes.



**villa**



UN Number: 3082

Registration holder: UNIVERSAL CROP PROTECTION (PTY) LTD.

Co. Reg. No. 1983/008184/07

P.O. Box 801, Kempton Park, 1620

Tel. (011) 396 2233

Website: [www.villacrop.co.za](http://www.villacrop.co.za)

### 24 HR EMERGENCY NUMBERS:

Griffon Poison Centre: +27 82 446 8946

24 HR Transport / Spill Emergency no: (Hazcall24) +27 86 044 4411

(Client: Villa Crop Protection)

DIRECTIONS FOR USE ENCLOSED

Batch Number:

Date of Manufacture:

REFER TO DETAILS AS PRINTED ON CONTAINER / BAG

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IRAC INSECTICIDE GROUP CODE: A15

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**WARNINGS****Withholding period:**

**Allow the following number of days between the last application and harvest of the crop listed below:**

Potatoes	9 days
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**IMPORTANT NOTES ON MRL'S:**

**IN THE CASE OF CROPS INTENDED FOR EXPORT, CONFIRM WITHHOLDING PERIODS WITH THE RELEVANT EXPORT ORGANISATION. IF THIS PRODUCT IS USED ACCORDING TO THE RECOMMENDATIONS ON THIS LABEL, LOCAL MRL VALUES WILL NOT BE EXCEEDED. HOWEVER, UNIVERSAL CROP PROTECTION (PTY) LTD. CANNOT ACCEPT RESPONSIBILITY FOR EXPORTED CROPS EXCEEDING THE IMPORT TOLERANCES OF OTHER COUNTRIES.**

**Hazard statements:**

May be harmful in contact with skin.
Causes eye irritation.
Very toxic to aquatic life.

- Handle with care.
- Avoid excessive drift (refer “**PRECAUTIONS**”).
- Keep out of reach of children, uninformed persons and animals.
- Store under lock and key in a cool, dry, well-ventilated place in the original container, tightly closed and secured.
- Store away from food, feeds, seed, fertilizers and other agricultural remedies.
- Re-entry: Do not enter treated area until spray deposit has dried unless wearing protective clothing.
- **In case of poisoning, take the patient immediately to a doctor and make this label available to him/her.**

**Aerial application:**

Notify all inhabitants in the immediate vicinity of the area to be sprayed and issue the necessary warnings. Do not spray over or allow drift to contaminate water or adjacent areas.

**Although this remedy has been extensively tested under a large variety of conditions, the registration holder does not warrant that it will be efficacious under all conditions. The action and effect thereof may be affected by factors such as abnormal soil, climatic and storage conditions, quality of dilution water, compatibility with other substances not indicated on the label, the occurrence of resistance of the pest against the remedy concerned, as well as by the method, time and accuracy of application. The registration holder furthermore does not accept responsibility for damage to crops, vegetation, the environment or harm to man or animal or for lack of performance of the remedy concerned, due to failure of the user to follow the label instructions or to the occurrence of conditions, which could not have been foreseen in terms of the registration. Consult the supplier in the event of any uncertainty.**

**PRECAUTIONS****Precautionary statements:**

Wash hands thoroughly after handling. Do not touch eyes.
Avoid release into the environment.
IF ON SKIN: Get medical help.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical help.
Collect spillage.
Dispose of content/container to suitable landfill in accordance with local regulations.

- Avoid inhalation of the spray mist while spraying.
- Avoid contact with eyes and excessive contact with the skin.
- Wear rubber gloves and a face shield when handling the concentrate and during application.
- Do not eat, drink or smoke whilst mixing, applying or before washing hands and face and change of clothing.
- Avoid drift of spray mist onto other crops, grazing, rivers, dams or areas not under treatment.
- Clean application equipment after use. Do not dispose of wash water where it can contaminate other crops, grazing, rivers or dams.
- **TRIPLE RINSE THE EMPTY CONTAINER AS FOLLOWS:** Invert the empty container over the spray or mixing tank and drain for at least 30 seconds after the flow has slowed down to dripping. Thereafter rinse the empty container three (3) times in succession with one quarter of the container volume fresh water and decant the rinsate into the spray or mixing tank. Puncture the triple rinsed container and dispose of via an approved collector or recycler ([www.croplife.co.za](http://www.croplife.co.za)). Do not bury, burn or donate the container to any other parties that may use it as a container for food or beverages.
- Prevent contamination of food, feedstuffs, drinking water and eating utensils.

Relevant hazardous components	
Diflubenzuron	480 g/l
MEG	<100 g/l
Tensiofix 821	<300g/l

### **FIRST AID MEASURES**

- **General advice:** 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. If exposed or concerned, get medical advice.
- **Inhalation:** Remove person from contaminated area to fresh air and assist breathing as needed. Seek medical attention if irritation occurs.
- **Skin:** Remove contaminated clothing and shoes. Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. **Obtain medical attention** if irritation persists.
- **Eyes:** Flush eyes with clean water for at least 15 to 20 minutes. Lift eyelids to facilitate irrigation. If present, remove contact lenses after 5 minutes and continue rinsing. **Seek medical attention if irritation persists.**
- **Ingestion:** Seek medical attention or call a poison control centre for treatment advice. Do not induce vomiting unless instructed to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person. If the person is alert, rinse mouth thoroughly with water
- **Advice to physician:** Treat symptomatically and supportively. No specific antidote known.

### **RESISTANCE WARNING**

**DIFLURON 480 SC** is a group code A15 insecticide. Any insect population may contain individuals naturally resistant to **DIFLURON 480 SC** and other group code A15 insecticides. The resistant individuals can eventually dominate the insect population if these insecticides are used repeatedly. These resistant insects may not be controlled by **DIFLURON 480 SC** or any other group code A15 insecticide.

To delay insecticide resistance:

- avoid exclusive repeated use of insecticides from the same insecticide group code. Alternate or tank mix with products from different insecticide group codes,
- integrate other control methods (chemical, cultural, biological) into insect control programmes.

For specific information on resistance management contact the registration holder of this product.

### **MODE OF ACTION:**

**Diflubenzuron** is a non-systemic insecticide active by both contact and ingestion. It inhibits chitin biosynthesis affecting CHS1 (chitin synthase 1) resulting in interference with formation of the cuticle leading to effects on moulting and growth regulation.

## **GENERAL INFORMATION**

- **DIFLURON 480 SC** interferes with the synthesis of chitin during the larval stages of the insect's development. It also possesses ovicidal activity, either by direct means or transovarial ("through the female").
- Best control is obtained on the first larval development stages (instars).
- **DIFLURON 480 SC** is mainly a stomach poison.
- Once the **DIFLURON 480 SC** has dried on the plant, it will be rainfast.
- The insect control action of **DIFLURON 480 SC** does not happen immediately. Treated larvae behave normally until death occurs at moulting or pupation.
- **DIFLURON 480 SC** does not control adult insects. In general, parasitic or predatory insects are not affected by **DIFLURON 480 SC**.
- **DIFLURON 480 SC** treatments should be applied just before or during egg deposition.
- The effect of **DIFLURON 480 SC** on the beneficial insect complex is minimal.
- **DIFLURON 480 SC** shows a favourable degradation pattern in water and soil.

## **Environment:**

- The use of **DIFLURON 480 SC** in potatoes combines a high effectivity on the pest insects with a high selectivity to non-target organisms. The toxicity of **DIFLURON 480 SC** is low towards mammals, birds, fish, Honeybees and most aquatic invertebrates **with the exception of small Crustaceans (Water fleas)**, and therefore its overall effect on the environment is low.
- Collectively, all these benefits mentioned above contribute to the product playing a key role in Integrated Pest Management (IPM) strategies for the control of Potato tuber moth.

## **DIRECTIONS FOR USE: Use only as directed**

### **Compatibility:**

- The compatibility of **DIFLURON 480 SC** with other products has not been tested and may be influenced by a variety of variables. As changing factors may vary, a physical compatibility test must always be performed, before such tank mixture is sprayed.
- When **DIFLURON 480 SC** is used in conjunction with any other agricultural remedy, adhere to all **WARNINGS, PRECAUTIONS** and **DIRECTIONS FOR USE** mentioned on the relevant labels.

### **Mixing Instructions:**

- Half fill the spray tank with clean water.
- Shake the **DIFLURON 480 SC** container well before use.
- Thoroughly mix the required volume **DIFLURON 480 SC** in approximately 10 litres water.
- Agitate the water in the spray tank and then add the product(s) to the tank in the following sequence (as applicable): acidifier/buffer or adjuvant, suspension concentrate, water soluble concentrate, emulsifiable concentrate.
- Fill the spray tank with water to the required level while maintaining agitation, to ensure thorough mixing.
- Maintain agitation while spraying.
- Prepared spray mixture must not be left in the spray tank for any length of time, e.g., overnight.

### **Instructions for Application:**

#### **Ground application:**

- It is important that all applications must be performed with suitable equipment that is in good working order and correctly calibrated, to give the desired coverage for that particular method of application.
- **DIFLURON 480 SC** can be applied by tractor sprayers with boom and nozzles and knapsack sprayers.
- Avoid spraying during the heat of the day.

#### **Aerial application:**

Aerial application of **DIFLURON 480 SC** may only be done by a registered aerial application operator using a correctly calibrated, registered aircraft according to the instructions of SANS Code 10118 (Aerial Application of Agricultural Pesticides). Ensure that the spray mixture is distributed evenly over the target area and that the loss of spray material during application is restricted to a minimum. It is therefore essential that the following criteria be met:

- Volume: A spray mixture volume of 30 litres per hectare is recommended. As this product has not been evaluated at a reduced volume rate, the registration holder cannot guarantee efficacy, or be held responsible for any adverse effects if this product is applied aerially at a lower volume rate than recommended above.

- **Droplet coverage:** 30 to 40 droplets per cm<sup>2</sup> must be recovered at the target area.
- **Droplet size:** A droplet spectrum with a VMD of 250 to 280 micron is recommended. Limit the production of fine droplets less than 150 micron (high drift and evaporation potential) to a minimum.
- **Flying height:** Maintain the height of the spray boom at 3 to 4 meters above the target. Do not spray when aircraft dives, is in a climb or when banking.
- Use suitable atomising equipment that will produce the desired droplet size and coverage, but which will ensure the minimum loss of product. The spraying system must produce a droplet spectrum with the lowest possible Relative Span.
- Position all the atomisers within the inner 60 to 75 % of the wingspan to prevent droplets from entering the wingtip vortices.
- The difference in temperature between the wet and dry bulb thermometers, of a whirling hygrometer, should not exceed 8°C.
- Stop spraying if the wind speed exceeds 15 km per hour.
- Stop spraying under turbulent, unstable and dry conditions during the heat of the day.
- Spraying under temperature inversion conditions (spraying in or above the inversion layer) and/or high humidity conditions (relative humidity 80 % and above) may lead to the following:
  - a) reduced efficacy due to suspension and evaporation of small droplets in the air (inadequate coverage),
  - b) damage to other sensitive crops and/or non-target areas through drifting of the suspended spray cloud away from the target field.
- Ensure that the aerial spray operator knows exactly which fields to spray.

Obtain an assurance from the aerial spray operator that the above requirements will be met and that relevant data will be compiled in a logbook and kept for future reference.

#### Spray Programme:

- The application timing of **DIFLURON 480 SC** should be part of a total spray programme to control Potato tuber moth. Such a programme should consist of three (3) application timings:
  - Applications of **non- CDI** products during the period from first moth infestation until first flowering.
  - Applications of **DIFLURON 480 SC** (for residual action) during the period from first flowering until foliage desiccation/destruction.
  - Application of **insecticides to control moths in soil cracks** during the period from desiccation to harvest.
- The total number of sprays will depend on the severity of re-infestation.

#### APPLICATION RATES

Crop / Pest	Dosage	Remarks
<b>Potatoes</b> Potato tuber moth ( <i>Phthorimaea operculella</i> )	300 to 315 ml / ha	<p><b>Do not exceed a total of 4 sprays in a growing season.</b></p> <p><u>First application:</u> Just before first flowering.</p> <p><u>Second application:</u> Just after first flowering.</p> <p><u>Third application:</u> 14 days after the second application.</p> <p><b>Ground Application:</b> Use in not less than 600 litres water per hectare. If infestations are high, a 4<sup>th</sup> application can be performed 14 days later.</p> <p><b>Aerial application:</b> Apply as above in 30 litres water per hectare.</p> <p>Refer “<b>Instructions for Application</b>” for further details.</p> <p>Better control is obtained if ridging is done at least two times per season.</p>