


NIMITZ®

Reg. no. L10436 Act/Wet 36 of/van 1947
N-AR 2267; W1301639

**READ THE LABEL BEFORE USE
KEEP OUT OF REACH OF CHILDREN AND ANIMALS**

An emulsifiable concentrate nematicide for the control of root knot nematodes in cucurbit crops as indicated, potatoes and tomatoes.	'n Emulsifiseerbare konsentraat aalwurmdoder vir die beheer van knopwortelaalwurm in aartappels, pampoengewasse soos aangedui, en tamaties.
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 <p style="text-align: center;">DANGER</p>	<p>Hazard statements May be fatal if swallowed and enter airways. May cause an allergic skin reaction. Causes serious eye irritation. Very toxic to aquatic life with long lasting effects.</p>
	<p>Precautionary statements Wear protective gloves/protective clothing/eye protection/face protection. Avoid release to the environment.</p>

ACTIVE INGREDIENT/AKTIEWE BESTANDDEEL

fluensulfone 480 g/L fluensulfoon
(heterocyclic fluoroalkenyl sulfone) (heterosikliese fluoroalkeniel sulfoon)

NET VOLUME/NETTO VOLUME

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REGISTRATION HOLDER/REGISTRASIEHOUER

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UN no.: 3082

In case of poisoning, call the following numbers:

Griffon Poison Information Centre: +27 82 446 8946 or
Tygerberg Poison Information Centre: +27 861 555 777

Emergency number:

SPILL TECH: +27 86 100 6366 or +27 83 253 6618

Batch number
Date of manufacture
Expiry date

Lotnommer
Datum van vervaardiging
Vervaldatum

WARNINGS

- May be fatal if swallowed and enter airways.
- May cause an allergic skin reaction.
- Causes serious eye irritation.
- Very toxic to aquatic life with long lasting effects.

Withholding period (minimum number of days between last application and harvest)

Cucurbit crops (baby marrow (zucchini), butternut squash, melon, muskmelon, pumpkin, squash)	None
Potatoes	77 days
Tomatoes (fresh, processed)	None

Note: The local maximum residue levels (MRLs) will not be exceeded if **NIMITZ®** is used in accordance with the label instructions. However, ADAMA South Africa (Pty.) Ltd. cannot be held responsible if MRLs of other countries are exceeded. Consult the local export or industry organisations regarding application timing, withholding periods and specific tolerances of countries to which produce will be exported.

- May cause lung damage if swallowed.
- May cause mild skin irritation in sensitive individuals. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.
- Store in a cool, well-ventilated place, away from food and feed.
- **Re-entry:** Do not enter the treated area until spray deposit has dried unless wearing protective clothing; preferably allow for a 24-hour re-entry period.

Although this remedy has been extensively tested under a large variety of conditions, the registration holder does not warrant that it will be effective under all conditions, because 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 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, or the environment, or harm to humans or animals, 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 with a qualified advisor, and/or an ADAMA SA (Pty) Ltd technical advisor, and/or the supplier in the event of any uncertainty.

PRECAUTIONS

- Keep out of reach of children.
- Wear protective gloves/protective clothing/eye protection/face protection.

- Avoid release to the environment.
 - Avoid breathing dust/fume/gas/mist/vapours/spray.
 - Do not eat, drink or smoke when using this product.
 - Wash face, hands and any exposed skin thoroughly after handling. Do not touch eyes.
 - Contaminated work clothing should not be allowed out of the workplace.
 - IF SWALLOWED: Get emergency medical help immediately.
 - Do NOT induce vomiting.
 - IF ON SKIN: Wash with plenty of soap and water.
 - If skin irritation or rash occurs, 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.
 - Take off contaminated clothing and wash it before reuse.
 - Store locked up.
 - Collect spillage.
 - Dispose of contents/ container to an approved waste disposal plant.
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- Avoid contact with skin, eyes, or clothing.
 - Prevent contamination of food, feed, drinking water and eating utensils.
 - Wear protective clothing that covers the arms and legs, such as cotton overalls (or equivalent clothing), appropriate footwear, chemical-resistant (rubber) gloves and a face shield when handling or applying the product.
 - Remove protective clothing and gloves immediately after handling the product. Wash gloves on the outside before removal. Wash gloves and contaminated clothing every time after use.
 - Remove clothing immediately should it become saturated with the product or if the product comes into contact with the body, and wash thoroughly. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with the product and do not reuse these items.
 - 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 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).
 - Do not bury, burn or donate the container to any other parties that may use it as a container for food or beverages.
 - During application avoid drift of the spray mixture onto neighbouring crops, grazing, water sources and areas that are not being treated or to areas where it can come into contact with people.
 - Clean the application equipment after use and dispose of wash and rinse water where it will not contaminate other crops, grazing and water sources.

RELEVANT SUBSTANCES

Chemical name	Weight %	CAS no.
Fluensulfone	40%	318290-98-1
Hydrocarbons, C10-C13, aromatics, <1% naphthalene	30–60%	64742-94-5
Propylene carbonate	10–30%	108-32-7
Benzenesulfonic acid, C10-13-(linear)alkyl derivs., calcium salt	<10%	932-231-6
2-Ethylhexan-1-ol	<10%	104-76-7

FIRST AID

Provide this label and SDS to medical personnel for treatment. Emergency personnel should wear protective clothing appropriate to the type and degree of contamination.

Remove contaminated clothing and remove the affected person from the contamination area. Keep the person warm, calm and comfortable. First aid personnel should pay attention to their own safety. Take the container label or product name with you when seeking medical attention.

Eye contact: Immediately rinse/flush the eyes gently with water from the eye wash fountain for several minutes (at least 15 minutes), while holding the eyelids apart. Check for and remove contact lenses if easy to do so. Continue rinsing. Obtain medical attention if irritation occurs and persists.

Skin contact: Remove all contaminated clothing and shoes. Rinse the skin immediately with plenty of water for 15 to 20 minutes under the safety shower. Wash contaminated clothing before re-use. Consult a physician if necessary.

Inhalation: Remove the affected victim from exposure to an area with fresh air. Keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Immediately obtain medical attention.

Ingestion: Obtain immediate medical attention or call a poison control center for treatment advice. If conscious, rinse mouth thoroughly with water. Never give anything by mouth to an unconscious or convulsing person. Do NOT induce vomiting. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomits, rinse mouth and administer more water.

TOXICOLOGICAL INFORMATION

Antidotes

None known.

Symptoms of human poisoning

None known.

RESISTANCE WARNING

Although resistance to **NIMITZ**[®] in nematode populations has not been proven, repeated exclusive use of any product may lead to a reduction in control due to enhanced biodegradation. Furthermore, any nematode population may contain individuals naturally resistant to **NIMITZ**[®]. The resistant individuals can eventually dominate the nematode population if the same nematicide is used repeatedly, which may lead to a reduction in control. Therefore rotation with nematicides with a different mode of action is recommended.

To delay resistance to **NIMITZ**[®], the product must be used as part of an integrated pest management (IPM) programme to control nematodes. IPM programmes using cultural practices, sanitation practices, planting of resistant varieties to reduce nematode infestations, monitoring or other detection methods, proper pest identification and rotation of nematicides with different modes of action could improve control.

For specific information on resistance management contact ADAMA South Africa.

MODE OF ACTION

Fluensulfone has pleiotropic actions and causes metabolic impairment (decreasing access to lipid stores) and inhibits egg-laying, egg-hatching, and development, as well as motility of larvae and feeding.

USE RESTRICTIONS

NOTICE TO THE USER: This agricultural remedy is to be used only in according to the directions of this label. It is an offense under the Act to use this product inconsistent with the directions on the label.

- Soil application only.
- Do not apply **NIMITZ**[®] by flood irrigation or overhead irrigation systems.
- Do not apply more than one application during the development of the crop, and not more than 8 L/ha per year.
- Do not apply at soil temperatures that do not allow nematode activity. **NIMITZ**[®] only acts on active nematodes. When inactive, nematodes will not absorb the product and will therefore not be controlled.
- Avoid application during rain or when heavy rain is forecast within the next 72 hours, and do not irrigate excessively within 72 hours after application, as large amounts of water immediately after application may result in **NIMITZ**[®] moving too quickly past the target zone.
- Do not apply if aquatic or wetland areas, including aqua-culture ponds, are within 20 m of the application area.
- Do not graze or feed the treated crop to livestock.
- Do not apply to crops that are not listed on the label.
- Do not apply **NIMITZ**[®] less than **7 days** before planting of cucurbits and tomatoes and less than **3 days** before planting of potatoes.

Succeeding crops in rotational cropping

Observe the following waiting periods before planting the next crop:

No restriction	Cucurbit crops (baby marrow (zucchini), butternut squash, melon, muskmelon, pumpkin, squash), potatoes, tomatoes
365 days	All other crops

DIRECTIONS FOR USE

Use only as indicated.

General

- **NIMITZ®** is a true nematicide that kills the target by contact, rather than causing temporary nematostatic activity (paralysis). The product has a rapid effect on nematodes; within one hour of contact nematodes cease feeding and quickly become paralysed. **NIMITZ®** requires between 24 and 72 hours to achieve complete mortality. Nematode eggs laid after exposure to **NIMITZ®** are likely to be unviable, or the juveniles that do hatch do not survive.
- **NIMITZ®** affects all active stages of the nematode life cycle by inhibiting the feeding and motility of adults and juveniles and the laying, development and hatching of eggs.
- **NIMITZ®** can only control nematodes present in the soil at the time of application. It will not eradicate nematode populations and damage from recurrence of nematodes could occur.
- The product will not control bacteria, insects, viruses, weeds or pathogens in treated areas. Consult a qualified advisor regarding additional measures to manage this.
- Efficacy may be reduced in soils with high organic matter content, especially where manure or compost has been applied.
- Uniform application to moist, well prepared soils is essential. Where present, clods, debris and plant residues should be thoroughly incorporated into the soil to prevent interference with application or control.
- Excessive moisture immediately after application may result in **NIMITZ®** moving too quickly past the target zone. Avoid excessive irrigation, application during rain or application when heavy rain is forecast within 72 hours after application.
- Efficacy and crop safety following **NIMITZ®** application can be influenced by a number of factors beyond the control of the manufacturer, including soil type, amount of irrigation or rainfall after application, quality of seed, seedlings and seed potatoes, the pre-plant interval, other environmental factors and cultivation practices.

Compatibility

- Do not apply **NIMITZ®** with any other product, including fertilizers.
- However, if tank-mixing of **NIMITZ®** with other products is required, a physical compatibility test has to be conducted before application to confirm compatibility of the mixture, as well as a biological assay to verify that application of the mixture will not have harmful effects on the crop.
- To determine **physical** compatibility, pour the required proportions of the product(s) into a suitable container. After mixing, wait for 30 minutes and check to see if the product remains in mixture. If the products remain in mixture, they are considered physically compatible.

- Contact ADAMA South Africa for information regarding product compatibility with **NIMITZ®**.

Mixing instructions

- Fill the spray tank to 70% of its volume with water, add the required quantity of **NIMITZ®** to the water in the spray tank while agitating, and mix well.
- Continue agitating the mixture in the spray tank during application and in periods between application.
- Use high quality water for the application of **NIMITZ®** and avoid the use of brackish water or water contaminated with colloidal particles.
- Thoroughly clean application equipment before and after application of **NIMITZ®**.

APPLICATION

General

- **NIMITZ®** can be applied by means of broadcast or banded spray application or in certain crops through the drip irrigation system, at the pre-plant intervals specified for the different crops. The product is not to be applied by flood irrigation or overhead irrigation systems.
- **NIMITZ®** has to reach the targeted zone in the soil, i.e., reach a depth of 15 to 20 cm, to allow contact with the root knot nematodes. Therefore **NIMITZ®** has to be incorporated either mechanically or by irrigation to a depth of 15 to 20 cm after application of the banded spray or broadcast application. If **cucurbit seeds** are planted, the product **must be** incorporated mechanically.
- Soil moisture influences soil incorporation of the product and efficacy of **NIMITZ®**. Therefore ensure soil moisture is adequate before application of **NIMITZ®** to achieve uniform mechanical incorporation, or uniform movement throughout the bed, from shoulder to shoulder and to a depth of 15 to 20 cm, if applied and washed in by means of irrigation.
- In the case of application by drip irrigation flush the irrigation lines with water to ensure no **NIMITZ®** is left in the irrigation system and that the product has reached the target zone.
- Treated areas can be covered with plastic or left uncovered, in accordance with planting practices.
- Seedlings must have two true leaves at the time of transplanting to minimise any potential post-transplant stress that may result in slower crop establishment.
- To avoid crop injury, implement the following instructions:
 - In potatoes, apply **NIMITZ® at least 3 days before planting**. Incorporate the product on the day of application, either mechanically or by irrigation, to a depth of 15–20 cm.
 - In tomatoes and cucurbit crops, apply **NIMITZ® at least 7 days** before planting or transplanting and follow the irrigation guidelines in Table 1 to wash **NIMITZ®** sufficiently from the root zone before planting of seeds or transplanting of seedlings. Note that the amount of water required will vary, depending on soil type and existing soil moisture. Excessive moisture such as rainfall or irrigation immediately after application may cause the product to move past the target zone in the soil.

Table 1. Pre-transplant irrigation required on the indicated number of days after application (DAA). Calculations are based on delivery of effective irrigation to a depth 20 cm.

Application type	Irrigation type	Soil clay %	Irrigation (mm)	
			3 DAA	5 DAA
Broadcast or banded spray application	Overhead sprinkler	<5 %	8	–
		≥5 %	8	8
	Surface drip ¹	<5 %	6	–
		≥5 %	4	4
Drip application	Surface drip ¹	<5 %	5	–
		≥5 %	5	5

¹ Surface drip: for transplanting up to 10 cm from irrigation line.

Broadcast and banded spray application

- **NIMITZ**[®] can be applied by broadcast or banded spray application to prepared beds before planting of seed potatoes or seeds or transplanting of seedlings. Banded spray application allows a targeted application of **NIMITZ**[®] to seed or seedling beds, reducing the overall volume of product required.
- Use conventional boom spray equipment for broadcast application or suitable spray equipment for banded application to apply **NIMITZ**[®] to the soil surface.
- Ensure that the application equipment is in a good working condition and not contaminated with other chemicals.
- Use of flat fan nozzles is recommended in broadcast application and even fan nozzles in banded application to ensure application of an even dose over the treated band.
- Select an appropriate nozzle and pressure to produce a coarse droplet spectrum (>300 micron) according to the nozzle manufacturer's specifications.
- Apply a minimum spray volume of 200 L/ha to obtain uniform application.
- For banded spray application, calculate the application rate to be applied based on the percentage of the area treated, as indicated in the **Application rates** table.
- Apply the spray mixture uniformly across the treated area.
- To minimise spray drift into non-target areas do not apply **NIMITZ**[®] from a spray boom at a height greater than 50 cm above the soil surface.
- Incorporate the product on the day of application, either mechanically or by irrigation, to a depth of 15–20 cm. Ensure soil moisture is adequate for uniform incorporation. Mechanically incorporate the product using a rotary implement. If incorporating by irrigation, apply sufficient water to distribute the product evenly, up to the indicated soil depth, but do not over-irrigate.
- If **cucurbit seeds** are planted, the product **must be** incorporated mechanically.
- After application and prior to planting of seeds or transplanting of seedlings, irrigate in accordance with the guidelines in Table 1.

- Allow **at least 7 days** between application and planting of seeds or transplanting of seedlings, and **at least 3 days** before planting of potatoes.
- Resume normal irrigation practices after planting of seeds or transplanting of seedlings.

Drip irrigation application

- Ensure application equipment is clean after use and before using for application of other products. **NIMITZ**[®] should not be applied in conjunction with a product for cleaning the drip lines, as this may reduce efficacy.
- **NIMITZ**[®] can be applied through drip irrigation systems, but not through any other type of irrigation system.
- Follow the guidelines of the manufacturer of the irrigation equipment.
- **NIMITZ**[®] is to be applied by a knowledgeable person who is experienced in the operation of the irrigation system.
- Ensure that **NIMITZ**[®] is distributed uniformly through the irrigation system and at the correct rate for the area to be treated.
- Apply **NIMITZ**[®] with adequate water and sufficient duration to wet the entire bed width and root zone (15 to 20 cm deep) uniformly.
- Calculate the application rate to be applied based on the percentage of the area treated, as indicated in the **Application rates** table below. Assume the wetting front is the same as the bed width for determining the rate to apply, or preferably use the actual wet area.
- The amount of water needed for an application will depend upon the initial level of soil moisture, the soil type, % organic matter and condition, as well as the placement of the drip irrigation line and emitter spacing, amongst others.
- The following steps are recommended when applying **NIMITZ**[®] through drip irrigation systems:
 1. Pre-irrigate the area in a manner that will ensure the planting bed is wet from shoulder to shoulder.
 2. Check the entire irrigation system, including emitters, during the pre-irrigation process to ensure the system is operating normally before injecting **NIMITZ**[®].
 3. Introduce **NIMITZ**[®] into the irrigation system to distribute the product evenly in the area being treated.
 4. Flush the irrigation system with water to ensure no **NIMITZ**[®] remains in the system.
- Do not over-apply system rinse water, as this could wash the **NIMITZ**[®] from the root zone.
- After application and prior to transplanting, irrigate according to the guidelines in Table 1.
- Allow **at least 7 days** between application and transplanting of seedlings.
- Resume normal irrigation practices after planting or transplanting.

APPLICATION RATES

CROP AND TARGET	DOSAGE	REMARKS
<p>Cucurbits (Seeds, seedlings)</p> <p>(Baby marrow (zucchini), butternut squash, melon, muskmelon, pumpkin, squash)</p> <p>Root knot nematodes (<i>Meloidogyne</i> spp)</p>	<p>8 L per treated hectare</p> <p>Only in soils with ≤9% clay</p>	<p>Apply 8 L of NIMITZ® per treated hectare as a broadcast or banded spray application in at least 200 L of spray volume per hectare.</p> <p>Banded spray application allows a targeted application to seed or seedling beds, reducing the overall volume of product required. Table 2 indicates the amount of product to be applied per 100 m row.</p> <p>Ensure that soil is moist at application. Refer to the specific instructions above for broadcast and banded application and incorporation of NIMITZ® into the soil.</p> <p>If cucurbit seeds are planted, NIMITZ® must be incorporated mechanically.</p> <p>Do not apply at planting or transplanting. As germinating seeds and cucurbit seedlings could be sensitive to NIMITZ®, the product should be applied at least 7 days before planting of seeds or transplanting of seedlings. The post-application irrigation requirements indicated in Table 1 should be implemented prior to planting or transplanting.</p> <p>Seedlings must be in at least the true two-leaf stage at the time of transplanting.</p> <p>Do not apply in soils with a clay content exceeding 9%.</p> <p>After transplanting, resume normal irrigation practices.</p>

CROP AND TARGET	DOSAGE	REMARKS
<p>Potatoes Root knot nematodes (<i>Meloidogyne</i> spp)</p> <p>WARNING: Only use NIMITZ® when planting high-quality seed potatoes that have not been damaged or impaired in any manner.</p>	<p>4–8 L per treated hectare</p>	<p>Apply NIMITZ® between 7 and 3 days before planting. Ensure that the soil is moist at application.</p> <p>Assess the risk of nematode damage and re-infestation related to the particular site with the assistance of a qualified advisor, and/or an ADAMA SA (Pty) Ltd technical advisor. Factors to consider include history of nematode infestation or damage, soil type, crop rotation and other agronomic practices, soil fumigation and other nematode control measures, nematode tolerance of the crop or variety, and market and phytosanitary requirements.</p> <ul style="list-style-type: none"> • Apply NIMITZ® at a rate of 4 to 6 L/ha on sites with a low to medium risk profile. • Apply NIMITZ® at a rate of 6 to 8 L/ha on sites with a medium to high risk profile. <p>Note that NIMITZ® is to be applied at the rates indicated per treated hectare in a minimum spray volume of 200 L of water per hectare as a broadcast or banded spray application. Table 2 indicates the amount of product to be applied per 100 m row.</p> <p>Apply the normal irrigation practices following planting.</p> <p>Incorporate the product on the day of application, either mechanically or by irrigation, to a depth of 15 to 20 cm. If incorporating by irrigation, apply sufficient water to distribute the product evenly, up to the indicated soil depth, but do not over-irrigate.</p> <p>To avoid crop injury in potatoes, apply NIMITZ® at least 3 days before planting.</p> <p>NOTE: In instances where severe nematode infestation is expected, an additional nematicidal treatment, such as a preceding soil fumigation, is recommended.</p> <p>WARNING: Use NIMITZ® only when planting high-quality seed potatoes that have not been impaired by pests, fungal, bacterial or viral infections, contact with herbicides, unfavourable growing conditions, storage and handling practices, or any other factors that could influence quality of tubers.</p>

CROP AND TARGET	DOSAGE	REMARKS
<p>Tomatoes (Seedlings) Root knot nematodes (<i>Meloidogyne</i> spp)</p>	<p>8 L per treated hectare</p> <p>Only in soils with ≤10% clay</p>	<p>Apply 8 L of NIMITZ® per treated hectare through the drip irrigation system. Ensure that soil is moist at application.</p> <p>Table 2 indicates the amount of product to be applied per 100 m row.</p> <p>Refer to the specific instructions for drip irrigation application and incorporation into the soil above.</p> <p>Do not apply at transplanting. As tomato seedlings could be sensitive to NIMITZ®, the product should be applied at least 7 days before transplanting and the post-application irrigation requirements indicated in Table 1 should be implemented prior to transplanting.</p> <p>Seedlings must have two true leaves at the time of transplanting.</p> <p>Do not apply in soils with a clay content exceeding 10%.</p>

Table 2. The amount of product to be applied by 100 m row in banded spray or drip irrigation applications NIMITZ® at a rate of 8 L per treated hectare. Calculations are based on treatment of the entire bed width.

Bed width	Amount of product per 100 m row
60 cm	48 ml
75 cm	60 ml
100 cm	80 ml
125 cm	100 ml

For example: If planting on bed widths of 60 cm and a total of 2000 m of row (20 x 100 m), the required amount of **NIMITZ®** is: 48 ml x 20 = 960 ml.