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BARRIER[®] 450 SC

FUNGICIDE GROUP CODE 2 and M3

A suspension concentrate contact and local systemic fungicide for the control of fungal diseases as indicated on potatoes and tomatoes.

Active ingredients:

Maneb (dithiocarbamate)325 g/l
Procymidone (dicarboximide)125 g/l
Zinc oxide4.7 g/l

Hazard Statement

H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H361 Suspected of damaging fertility or the unborn child.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements

P260 Do not breathe mist/ vapours/ spray.
P264 Wash thoroughly after handling.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTRE/doctor if you feel unwell.

Manufacturer & Supplier:

Nulandis, a division of AECI LTD
14 Field Road, Lilianton, Boksburg, 1459,
South-Africa
Tel: +27 11 823 8000



Local Distributor:

ATS Agrochemicals Ltd.
Stand 3143, Mukwe Road, Lusaka,
Zambia
Tel: +260 1 246 724-6

BARRIER[®] is a registered trademark of AECI Limited (Nulandis[®], a division of AECI Ltd)



Net Volume:

UN No: 3082 - Environmentally hazardous substance, liquid, n.o.s.

Batch No:
Manufacturing date:
Expiry Date:

P7072 V1



WARNING



BARRIER 450 SC

Reg. No. L7604 Act No 36 of 1947
Botswana Reg. No./Nr W130570, Act No./Wet Nr. 18 of van 1999
Malawi Reg. No. MW/PCB/2016/0754
Namibian Reg. No. N-AR 1668

NULANDIS
unlocking nature's potential



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FUNGICIDE GROUP CODES 2 and M3

P6091, 4/2019 Version 02

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Active ingredients

Maneb (dithiocarbamate)	325 g/l
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Zinc oxide	4.7 g/l

WARNINGS:

WITHHOLDING PERIODS - MINIMUM TIME BETWEEN LAST APPLICATION AND HARVEST.

Tomatoes	3 days
Potatoes	35 days

Handle with care. Irritant eyes, nose, throat and skin. Harmful if swallowed or inhaled. Toxic to fish. Store in a cool place. Store out of reach of children, uninformed persons and animals. Store away from food and feeds.

Re entry interval: Do not enter treated area before spray deposit has dried unless wearing protective clothing.

Aerial Application:

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

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 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 and the occurrence of resistance of the disease to 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:

1. Do not inhale fumes or spray mist. Wear rubber gloves and boots and a face shield when preparing spray mixture.
2. Wash contaminated clothing daily.
3. Wash with soap and water after use or accidental skin contact.
4. In the case of contact with eyes flush for at least 15 minutes. If irritation persists, get medical attention.
5. Use only in well ventilated areas.
6. Avoid drift of spray onto other crops, grazing, rivers, dams and areas not under treatment.
7. Clean applicator before using other remedies and dispose of wash water where it will not contaminate crops, grazing, rivers and dams.
8. Rinse empty container three times with a volume of water equal to a minimum of 10% of that of the container. Add the rinsing to the contents of the spray tank. Destroy empty container and dispose of in a safe way. Never use for any other purpose.
9. Prevent contamination of food, feeds, drinking water and eating utensils.

DIRECTIONS FOR USE: Use only as directed

1. **Compatibility**
Compatible with most fungicides and insecticides but should not be used with alkaline products such as Lime Sulphur or Bordeaux Mixture. The addition of Bladbuff 5 is recommended to prevent alkaline hydrolysis. (First adjust the quality of the water followed by the addition of BARRIER 450 SC).
2. **Mixing Instructions.**
Fill the tank from ¼ to ½ full with water and start agitating (use mechanical or hydraulic agitation). Add the required quantity of BARRIER 450 SC to the tank while it is filled with water. Continue agitating the spray mixture constantly during mixing and spray operation.
3. **High volume application:**
If the dosage per 100 l water recommended is followed, ensure that total coverage of plants but without run-off is achieved.

Aerial Application:

Potatoes only: Do not commence aerial application before consulting your BARRIER 450 SC representative.

Aerial application of this product 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). It is important to 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. Ensure that fields are accurately marked and that the aerial spray operator knows exactly which fields to spray. Therefore it is essential that the following criteria are met:

Volume: A minimum volume of 30-40 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: A droplet coverage of 50- 70 droplets per cm² must be recovered at the target. The CV for droplet distribution must not exceed 40 %.

Droplet size: A droplet spectrum with a VMD of 250 microns is recommended. Ensure that the production of fine droplets (less than 150 microns - high drift & evaporation potential) is restricted to a minimum.

Flying height: The height of the spray boom should be maintained at 3-4 meters above the target. Do not spray when aircraft is in a climb, at the top or during a dive, or when banking. The following flying heights must be maintained above the target area. At wind speeds of:
0 8 km/h 3m
8 15 km/ha 2m
at more than 15 km/h - do not spray.

Use suitable **atomising equipment** (hydraulic nozzles or rotary atomisers) that will produce the desired droplet size and coverage, but which will ensure the minimum loss of product either through endodrift (within target field) or exodrift (outside target field). The operator must use a setup that will produce a droplet spectrum with the lowest possible relative span.

All nozzles / atomisers should be positioned within the inner 60% to 75% of the wingspan to prevent droplets from entering the wingtip vortices.

Use a conventional boom equipped with hollow cone spray nozzles, e.g. D10-45.

Meteorological conditions:

The difference in temperature between the wet and dry bulb thermometers, of a whirling hygrometer, should not exceed 8°C. The addition of a suitable anti-eporant is recommended if the VMD of the droplets is less than 200-250 microns.

Aerial application of this product must not be done under turbulent, unstable conditions during the heat of the day when rising thermals and downdraughts occur. Also note that the application of this product under temperature inversion conditions (spraying in or above the inversion layer) may lead to the following:

- Reduced efficacy due to suspension and evaporation of small droplets in the air (inadequate coverage)
- Damage to other sensitive crops and or non-target areas through the movement 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.

CROP / DISEASE	DOSAGE/ 100 l WATER	REMARKS
POTATOES Early blight (<i>Alternaria solani</i>)	200 ml (0,4 - 2,0l/ha)	Apply as a high volume spray at 200-1000l spray mixture per ha and ensure good coverage of entire plant above ground. Repeat application at intervals of 7 to 14 days and use the higher dosage and volume at shorter intervals under favourable disease conditions and especially after bloom when plants are more susceptible to early blight and a larger plant surface must be protected.
Late blight (<i>Phytophthora infestans</i>)	200-400 ml (0,4 - 4,0l/ha)	Under conditions which are extremely favourable for late blight development, Barrier 450 SC must be alternated with a registered systemic / eradicative fungicide. Do not apply more than 8l Barrier 450 SC / ha / season. Can also be aerially applied in not less than 300l water per ha.
TOMATOES Late blight (<i>Phytophthora infestans</i>)	200 ml	For the curative control of Early blight and Septoria leafspot and preventative control of late blight, commence with application after plants are established and apply preventively at intervals of 5 to 10 days depending on weather conditions which may favour the disease and decrease the fungicidal activity. Apply 200 to 2000 l spray mixture per hectare depending on plant size.
Early blight (<i>Alternaria solani</i>)		
Septoria leafspot (<i>Septoria lycopersici</i>)		For the control of early blight, thorough coverage of foliage is necessary. For low volume application, concentration of fungicide in the spray mixture should be increased proportionately. Do not use on tomato seedbeds.