

# Met52<sup>®</sup>

## granular

# bioinsecticide

	% w/w
<b>ACTIVE INGREDIENT</b>	
<i>Metarhizium anisopliae</i> Strain F52*	2.0%
<b>OTHER INGREDIENTS</b>	98.0%
<b>Total</b>	<b>100.0%</b>

\* Contains 9.0 x 10<sup>8</sup> Colony Forming Units (CFU)/gram.

**KEEP OUT OF REACH OF CHILDREN  
CAUTION**

### PRECAUTIONARY STATEMENTS

#### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Causes moderate eye irritation. Harmful if inhaled, absorbed through skin, or swallowed. Avoid contact with skin, eyes, or clothing. Avoid breathing dust. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

Refer to directions of use within this booklet

**Net contents:**  
22 lb (10 kg)

USA

Batch code / expiry date

<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

Produced for  
Novozymes Biologicals Inc.  
5400 Corporate Circle  
Salem, VA 24153, USA  
1-888-744-5662

EPA Establishment Number: 085238-CAN-001  
EPA Registration Number: 70127-8  
Made in Canada 11084 05.11

FIRST AID	
<b>IF IN EYES:</b>	Hold eye open and rinse slowly and gently with water for 15 – 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
<b>IF INHALED:</b>	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
<b>IF ON SKIN OR CLOTHING:</b>	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 – 20 minutes. Call a poison control center or doctor for treatment advice.
<b>IF SWALLOWED:</b>	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
<b>HOTLINE NUMBER</b>	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. For emergency information on this pesticide product (including health concerns, medical emergencies, or pesticide incidents) call the National Pesticide Information Center at 1-800-858-7378 6:30 a.m. – 4:30 p.m. Pacific Time (PT), seven days a week. During other times call the poison control center at 1-800-222-1222.	

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## Personal protective equipment

Mixer/loaders, applicators, and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes and socks
- Protective eyewear
- Dust-mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C) or a NIOSH approved respirator with any N-95, R-95, P-95 or HE filter
- Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization

Follow manufacturer's instructions for cleaning/maintaining PPE.

If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

## Engineering controls

When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "applicators and other handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment break-down.

### User safety recommendations

- Users should remove clothing immediately if pesticide gets inside, then wash thoroughly and put on clean clothing
- Remove personal protection equipment immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing

## Environmental hazards

For terrestrial uses. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

## Physical or chemical hazards

For spill, leak, fire, exposure, or accident call CHEMTREC at 1-800-424-9300, day or night.

## Directions for use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the state or tribal agency responsible for pesticide regulation.

### Agricultural use requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

For uses that are soil incorporated mechanically, there is a 0 hour Restricted Entry Interval (REI) – the Worker Protection Standard allows workers to enter the treated area if there will be no contact with anything that has been treated. For all other uses, do not enter or allow worker entry into treated areas during the REI of four hours.

PPE required for early entry to treated areas requiring an REI that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water are:

- Coveralls
- Waterproof gloves
- Shoes plus socks
- Protective eyewear
- Dust-mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C) or a NIOSH approved respirator with any N-95, R-95, P-95 or HE filter

### **Non-agricultural use requirements**

The requirements in this box apply to uses that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Keep unprotected persons out of treated areas until sprays have dried.

### **General**

Met52® Granular Bioinsecticide is composed of spores of the insect pathogenic fungus *Metarhizium anisopliae* Strain F52 on a grain matrix. Once the product is incorporated into the growing medium, insects that come into contact with the fungus will become infected. The spores of *Metarhizium anisopliae* attach to the surface of the insect, germinate, and begin to grow. It will penetrate the exoskeleton of the insect and grow inside the insect, causing the insect to die. Under moderate temperatures it usually takes three to seven days once the insect is exposed for death to occur. At very cold or hot temperatures death may occur more slowly. The fungal spores will be more persistent when incorporated in the soil, especially in potting media, than when applied to foliage.

Note: Met52 Granular Bioinsecticide contains live spores that may be harmed by storage at high temperatures. See storage and disposal section for more information.

**Mode of action and application timing:** Application frequency will depend on the environment to which Met52 Granular Bioinsecticide is applied and the target insects' life cycle. Persistence of Met52 Granular Bioinsecticide will generally be higher when incorporated into soil. Applications to leaf litter and turf may be done on a four to six week interval with an expected residual efficacy of a few months.

When possible, application to soil should be done in advance of when target insect will be passing through the top six inches of soil. A residual efficacy of a few months can be expected. Although the penetration of Met52 Granular Bioinsecticide into soil will vary greatly with soil type and level of irrigation it is best to target populations as close to the surface as possible or time application of Met52 Granular Bioinsecticide with a soil incorporation event.

Once the product is incorporated into the growing medium, insects that come into contact with the fungus become infected. The spores attach to the surface of the insect, germinate and grow. Under moderate temperatures it usually takes three to seven days once the insect is exposed for death to occur. At very cold or hot temperatures death may occur more slowly. The fungal spores will be more persistent when incorporated in the soil, especially in potting media, than when applied to foliage. Met52 Granular Bioinsecticide has been demonstrated to last through two black vine weevil egg laying seasons when incorporated into growing media in the spring before egg lay. Other insects that come into contact with infected insects may also be infected extending the control period.

**Pre-harvest interval:** The pre-harvest interval for Met52 Granular Bioinsecticide is zero (0) days. Met52 Granular Bioinsecticide may be applied up to the day of harvest.

### **Sites for use**

**Terrestrial non-food:** Greenhouse ornamental, nurseries, urban and suburban residential and institutional lawns and landscape perimeters. Do not apply on poinsettias after bract formation.

**Food Crops:** Met52 Granular Bioinsecticide can be applied to the crops listed in Table 1. Met52 Granular Bioinsecticide has shown plant safety but has not been tested on all varieties. Test Met52 Granular Bioinsecticide on a small number of plants to check for potential damage before applying to a large number of plants.

## Application instructions

**Nursery planting mix:** Apply Met52 Granular Bioinsecticide prior to or during planting by thoroughly mixing the product into the growing medium, ensuring even distribution. It may help distribution to first apply the full concentration of a smaller volume of growing medium such as to 1/10 to 1/3 of the total volume and then mix this concentrated growing medium with the full volume. Apply at a rate of 1.5 to 3.0 pounds of product per cubic yard of growing medium (or 25 to 50 grams per cubic foot of growing medium). Use higher label rates when larval pressure is expected to be high.

Met52 Granular Bioinsecticide is grown on rice grains that will decompose in the growing media. Pests likely to be attracted to grain, such as rodents, must be controlled prior to use of this product.

**Application to turf:** Apply 1 to 3 pounds of Met52 Granular to 1000 square feet in residential and institutional lawns and landscape perimeters. Applications for blacklegged ticks should focus on the border of manicured lawns and paths creating a minimum of a 9 foot border. Applications for more mobile ticks such as the lonestar tick should cover a wider area and include the entire lawn. Initial applications should begin in the spring before ticks become active and continue at four to eight week intervals throughout their active season.

Crop	Pest	Application	Rate
Onions	thrip pupae	nursery plant mix	1.5 - 3.0 lb/yd <sup>3</sup>
Celery, lettuce, spinach	thrip pupae	nursery plant mix	1.5 - 3.0 lb/yd <sup>3</sup>
Peppers, tomatoes	thrip pupae	nursery plant mix	1.5 - 3.0 lb/yd <sup>3</sup>
Grape, strawberry, cranberry, raspberry, blackberry	thrip pupae, vine weevils	nursery plant mix	1.5 - 3.0 lb/yd <sup>3</sup>
Ornamental plants and grasses: shrubs, vines, trees, bedding plants, etc.	thrip pupae, vine weevils	nursery plant mix	1.5 - 3.0 lb/yd <sup>3</sup>
Turf: institutional, residential lawns (urban and suburban)	ticks	broadcast	1.0 - 3.0 lb/1000 ft <sup>3</sup>

*Applicators other than homeowners:*

### **Storage and disposal**

Do not contaminate water, food, or feed by storage or disposal.

### **Pesticide storage**

Store Met52 Granular Bioinsecticide in its original container below 73 °F (23 °C) in a dry, locked place out of reach of children and out of direct sunlight. Do not use or store near heat or open flame. Use product within one year and by the expiry date noted on the label.

### **Pesticide disposal**

To avoid wastes, use all material in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments or by industry).

### **Container handling**

Nonrefillable container. Do not reuse or refill this container. Completely empty bag into application equipment. Then offer for recycling, if available, or dispose of empty bag in a sanitary landfill or by incineration. Do not burn, unless allowed by state and local ordinances.

*Homeowners:*

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### **If empty:**

Place container in trash, or offer for recycling, if available.

### **If partly filled:**

Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

## **Warranty**

The Directions for Use of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and must be followed carefully.

Novozymes Biologicals warrants that at the time of the first sale of this product it conforms to the chemical description on the label and when used according to the label directions under normal growing conditions is reasonably fit for the purposes referred to above. To the extent consistent with applicable law, buyers/users of this product assume full risk for any use contrary to the specified directions. If this product does not perform as warranted above, customer's sole remedy for breach of warranty, to the extent consistent with applicable law, shall be replacement of the product or refund of the purchase price paid, at the option of Novozymes Biologicals.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, EXCEPT AS PROVIDED ELSEWHERE IN WRITING CONTAINING AN EXPRESS REFERENCE TO THIS WARRANTY AND LIMITATION OF DAMAGES, SELLER MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OR GUARANTY, INCLUDING ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR OF MERCHANTABILITY, AND NO AGENT OF SELLER IS AUTHORIZED TO DO SO.

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