

# Met52<sup>®</sup> EC

Bioinsectide

## Benefits

- Unique contact infection mode of action
- Protects traditional chemistry from insect resistance development
- No known resistance, valuable tool for insecticide resistance management and IPM programs
- Compatible with IPM programs using beneficial insects
- Comparable efficacy to chemical insecticides
- Designed to be applied with standard application equipment
- MRL exempt from tolerance
- 4 hour re-entry interval
- 0 hour pre-harvest interval

## Application guide

Met52<sup>®</sup> EC is a contact bioinsecticide utilizing an insect pathogenic fungus for the effective control of thrips, mites, whiteflies and vine weevils in greenhouse ornamentals, protected vegetables, and outdoor fruits and vegetables. Met52<sup>®</sup>EC fungal spores are suspended in an emulsifiable oil, which can be applied foliar or drenched into the soil.

## Ingredients

<b><i>Metarhizium anisopliae</i> Strain F52</b>	<b>11.0% w/w</b>
Contains	2x10 <sup>9</sup> Colony Forming Units (CFU)/gram
Other ingredients	89.0%

## Product facts

- Met52<sup>®</sup> EC active is a living spore, and best results will be obtained at temperatures between 55-90°F.  
- Constant temperatures outside of this range could be detrimental to efficacy. If temperatures exceed this range for only a portion of the day, efficacy should be unaffected

- The Met52<sup>®</sup>EC mode of action provides insect control in 3-7 days, depending on environmental conditions, temperature and contact with insect
- Excellent option for long term insect management, including population management practices that utilize beneficial insects or rotations with chemical insecticides

## Success factors

- Apply in the early stages of population development
- As it is a contact bioinsecticide, Met52<sup>®</sup> EC product efficacy is impacted by coverage
- Application frequency will depend on:
  - The environment (such as whether plants are protected or outdoors)
  - The manner in which Met52<sup>®</sup> EC is applied (foliar or drench)
  - The target insects' population and economic thresholds
- It is recommended to begin applying Met52<sup>®</sup> EC at early stages of population development, based on growers' own economic thresholds
- Higher insect populations may require the use of chemical insecticides for knockdown and shorter application intervals of Met52<sup>®</sup> EC to 2-5 days to achieve acceptable control
- Met52<sup>®</sup> EC has been determined to be safe and efficacious for the uses described but has not been tested on all varieties of listed plant species. Novozymes recommends conducting small precautionary phytotoxicity testing on target crop prior to large scale spraying

Always read and follow label use directions.

Crop	Targets
Celery, lettuce, spinach	Thrips, whiteflies, mites, aphids*
Fruiting vegetables (peppers, tomatoes)	Thrips, whiteflies, mites, aphids*
Ornamental plants	Thrips, whiteflies, mites, weevils
Berry & small fruit (grape, strawberry, cranberry, raspberry, blackberry)	Thrips, whiteflies, mites, weevils, aphids*
Onions	Thrips

\*Current 2ee recommendation

## Met52<sup>®</sup> EC handling and mixing instructions

- Do not pre mix in small containers (such as a 5 gallon pail). Follow label spray tank mixing instructions
- Shake vigorously for 30-45 seconds before adding to tank
- Fill spray tank with half of the required amount of non-chlorinated water, start agitation 20 minutes prior to application and continue until finished
- Slowly pour required amount of Met52<sup>®</sup>EC into spray tank
- If adding adjuvants, Novozymes recommends precautionary phyto testing prior to large scale spraying
- Triple rinse empty Met52<sup>®</sup> EC container into spray tank
- Add remaining non-chlorinated water
- Spray out tank within 6 hours. Do not hold overnight
- **Once opened, use entire contents of bottle**

## Packaging

Met52<sup>®</sup> EC is packaged in a 1.06 quart (33.08 fl oz or 1 liter) container and is applied at a rate from 8 oz to 32 oz per acre.

## Storage

Store Met52® EC in its original container at or below 68°F (20°C) in a dry, locked place, out of the 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. **Once opened, use entire contents of bottle.**

## Application instructions

### Foliar application per volume (rate/100 gallons of spray):

- Rate
  - **INDOOR:** Apply at a rate of 8 fl oz (½ pt) to 32 fl oz (1 qt) per 100 gallons. Use higher rates for greater insect populations. Repeat applications at 5-10 day intervals to achieve the best control
  - **OUTDOOR:** Apply 8 fl oz (½ pt) to 32 fl oz (2 qt) of Met52® EC per acre. Use higher rates for greater insect populations. Repeat applications at 5-10-day intervals to achieve the best control
- In most instances 16 oz/100 gallons or 16 oz/acre is recommended, however, rate and frequency should be according to insect pressure and environmental conditions. Both indoor and outdoor crop and ornamental production may require reduced intervals and/or higher rates and to keep insect populations below economic thresholds
- Adequate coverage is required to achieve insect contact; thus plant and insect location may require different application volumes to optimize insect control
  - For indoor use, spray to wet all foliage to achieve adequate coverage, but avoid runoff
  - For outdoor use, use spray volumes that give full coverage
  - For whitefly and mite control, ensure coverage of the underside of the leaf
- Do not apply through a thermal pulse fogger

## Drench application

- For both indoor and outdoor production apply the labeled use pattern of 40-80 fl oz of Met52® EC per 100 gallons of drench solution
  - For pot applications: drench application should be thoroughly watered-in without causing water to come out of the bottom of the pots
  - ◇ Application volume and rate will be dependent on the soil type and moisture content at time of application, however, a guide is around 8 ounces of the 100-gallon drench solution per gallon pot
- Take precaution that the drench application moves vertical and not lateral as this will impact efficacy
- Sequential application frequency is relative to insect pressure, media disturbance and maintenance of treated media

## Incompatible foliar fungicides

At present we do not recommend to tank mix with any pesticides. Studies indicate incompatibility with the following fungicides when they are applied separately from Met52® EC, even when applied within 7 days of Met52® EC application.

- Chlorothalonil
- Azoxystrobin
- Boscalid
- Thiram
- Mancozeb
- Captan

### Compatible foliar fungicides

At present we do not recommend to tank mix with pesticides. Studies indicate compatibility with the following fungicides when they are applied separately from Met52® EC

• Copper sulfate	• Fluazinam	• Myclobutanil
• Cymonaxynl	• Fluopicolide	• Prothioconazole
• Cyprodinil	• Fluoxastrobin	• Sulfur
• Defenoconazole	• Fosetyl-Al	• Tebuconazole
• Dimethomorph	• Iprodione	• Trifloxystrobin
• Fenhexamid	• Mefenoxam	

\*\*Actives not listed are not recommended

**Met52® EC is friendly to growers using an indigenous or introduced beneficial insect program.**

### Compatible beneficials

• <i>Amblyseius swirskii</i>	• <i>Hippodamia convergens</i>
• Bumblebees	• Honeybees
• <i>Chrysopa sp.</i>	• <i>Macrolophus caliginosus</i>
• <i>Dalotia coriaria</i>	• <i>Nasonia vitripennis</i>
• Earthworms	• <i>Nesidiocoris tenuis</i>
• <i>Encarsia formosa</i>	• <i>Phytoseiulus persimilis</i>
• <i>Eretmocerus eremicus</i>	• <i>Stratiolaelaps scimitus</i>
• <i>Geolaelaps aculeifer</i>	• <i>Typhlodromus pyri</i>

#### About Novozymes

Novozymes is the world leader in biological solutions. Together with customers, partners and the global community, we improve industrial performance while preserving the planet's resources and helping build better lives. As the world's largest provider of enzyme and microbial technologies, our bioinnovation enables higher agricultural yields, low-temperature washing, energy-efficient production, renewable fuel and many other benefits that we rely on today and in the future. We call it Rethink Tomorrow.

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