

65458-3

# Bactec BT 16 Biological Insecticide

## Wettable Powder

**Active Ingredient:**

*Bacillus thuringiensis* (subsp. *kurstaki*)

Lepidopteran active toxin ..... 7.5%

**Other Ingredients:** ..... 92.5%

**Total:** ..... 100.0%

\*Potency: 16,000 International Units of potency per mg of product or 7.26 billion International Units per pound of product. There is no direct relationship between intended activity (potency) and the Percent Active Ingredient by Weight.

### KEEP OUT OF REACH OF CHILDREN CAUTION

#### STATEMENT OF PRACTICAL TREATMENT

IF IN EYES: Flush with plenty of water. Get medical attention if irritation persists.

IF ON SKIN: Wash skin with plenty of soap and water. Get medical attention if irritation persists.

**See side panel for additional precautionary statements.**

Net Contents: ###

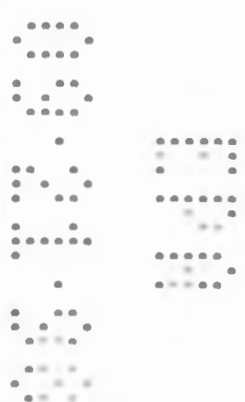
EPA Reg. No. 65458-3

EPA Establishment No. 65458-TX-001

Plato Industries, Inc., 2020 Holmes Road, Houston, TX 77045

Tel: (713) 797-0406, Fax: (713) 795-4665

ACCEPTED  
for shipment and use of product  
for experimental purposes under  
the provisions of the Federal  
Insecticide, Fungicide, and  
Rodenticide Act. 22 1998  
Permit No. \_\_\_\_\_



## **PRECAUTIONARY STATEMENTS**

### **Hazards to Humans and Domestic Animals**

Harmful if absorbed through the skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing.

**PERSONAL PROTECTIVE EQUIPMENT (PPE):** Applicators and other handlers must wear long-sleeved shirt and long pants, waterproof gloves and shoes plus socks. As a general precaution when exposed to potentially high concentrations of living microbial products such as this, all mixer/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Follow manufacturer's instructions for cleaning / maintaining PPE. Keep and wash PPE separately from other laundry.

Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove PPE 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**

Do not apply 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 cleaning equipment or disposing of equipment washwaters.

## **DIRECTIONS FOR USE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation. 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.

### **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 intervals (REI). The requirements in this box

Bactec BT 16 Biological Insecticide

Page 2 of 11

Last revision 9/14/98

only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval of 4 hours.

PPE requirement for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water, is coveralls, waterproof gloves and shoes plus socks.

#### **Non-Agricultural Use Requirements**

The requirements in this box apply to uses of this product 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.

#### **STORAGE AND DISPOSAL**

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

**Pesticide Storage:** Tightly reclose containers of unused product and store in a dry, cool place.

**Pesticide Disposal:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**Container Disposal:** Completely empty bag in a application equipment. Dispose of empty bag in a sanitary landfill, by incineration, or if allowed by state and local authorities, by burning (if burned, stay of smoke).

### **APPLICATION DIRECTIONS:**

Bactec BT may be applied for control of any labeled pest in both field and greenhouse uses. Bactec BT is a highly specific insecticide for use against the listed caterpillars (larvae) of lepidopterous insects. Close observation and attention to insect infestations is strongly recommended. Larvae must eat spray deposits of Bactec BT to be affected and induce mortality. Bactec BT may be applied up to and including the day of harvest.

**Always follow these guidelines:**

- \* Treat when larvae are young (early instars) and actively feeding on treated, exposed parts. Make applications before noticeable foliar damage occurs.
- \* Thorough spray coverage is needed to provide a uniform deposit of Bactec BT on the sites of larval feeding. For ground applications, directed drop nozzles should be used for certain crops.
- \* Under heavy pest population pressure, use the higher label rates, shorten the spray intervals and/or raise the gallonage to improve spray coverage.
- \* Repeat applications at intervals sufficient to maintain control, usually 3 to 14 days depending on plant growth rate, insect pressure and weather conditions after spraying. If attempting to control a pest with a single spray, make the treatment when egg hatch is essentially complete, but before extensive crop damage occurs.
- \* The pH of the spray solution should be held within a range of 6.6 to 6.9. Use a buffering agent when spray water has a pH exceeding 8.0.
- \* A spreader-sticker which has been approved for use on growing and harvested crops may be added for hard-to-wet crops, such as cole crops, or to improve weather-fastness of the spray deposits. Feeding stimulants may improve performance in situations of heavy insect pressure, inadequate coverage or dense crop canopy.

After eating a lethal dose of Bactec BT, larvae usually stop feeding, develop paralysis and die within 1 to 3 days. Dying larvae move slowly, discolor and eventually shrivel and die.

Bactec BT may be applied in conventional knapsack, tractor or aerial spray equipment with quantities of water sufficient to provide thorough coverage of infested plant parts. The amount of water needed per acre will depend on crop size, weather, spray equipment and local experience. Add water to the spray or mixing tank at the level that provides maximum agitation. With the agitator running, sprinkle Bactec BT into the tank and continue agitation. Then, add other spray materials, if any (a sticker, adhesive or deposit builder may be added when a heavy dew or rain is encountered). Add the balance of the water and agitate until mixed. Be sure to maintain the suspension while loading and spraying. When possible, apply early morning or evening in calm air conditions. Unless otherwise indicated by local instructions, use at least 2 gallons of water by air (except in the west where 5 - 10 gallons is the typical minimum). For aerial applications, the distance of the outer most nozzles on the boom must not exceed  $\frac{3}{4}$  the length of the wingspan or rotor. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45

degrees. For applications to trees, use the recommended amount of Bactec BT in 100 gallons/acre of water in high-pressure, high-gallonage, hydraulic sprayers, wetting the foliage thoroughly but avoiding excessive run-off. For mist blowers, use recommended amount in 10 gallons/acre of water. Do not mix more Bactec BT than can be used in a 12 hour period. Do not apply this product through any type of irrigation system.

#### **Aerial Drift Reduction Advisory Information**

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions. Where states have more stringent regulations, they should be observed. Note: This section is advisory in nature and does not supersede the mandatory label requirements.

**INFORMATION ON DROPLET SIZE:** The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

**CONTROLLING DROPLET SIZE: Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets. **Pressure** -Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When high flow rates are needed, use higher flow rate nozzles instead of increasing pressure. **# of Nozzles** - Use the minimum number of nozzles that provide uniform coverage. **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential. **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

**BOOM LENGTH:** For some use patterns, reducing the effective boom length to less than  $\frac{3}{4}$  of the wingspan or rotor length may further reduce drift without reducing swath width.

**APPLICATION HEIGHT:** Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**SWATH ADJUSTMENT:** When applications are made with a crosswind, the swath will be displaced downward. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

**WIND:** Drift potential is lowest between wind speeds of 2 - 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. **NOTE:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

**TEMPERATURE AND HUMIDITY:** When making applications in low relative humidity, set up equipment not produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

**TEMPERATURE INVERSIONS:** Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

**SENSITIVE AREAS:** The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

## APPLICATION RATES

Crop	Pests	Lbs/Acre
<b>Root and Tuber Crops</b> such as carrots, potatoes, beets and sugarbeets.  <b>Bulbs</b> such as onions (green and bulb), leeks and garlic.  <b>Leafy and Cole Crops</b> such as lettuce (head and leaf), kale, celery, spinach, broccoli, cabbage, mustard greens, turnip greens, Brussels sprouts, cauliflower, collards, Chinese cabbage, endive, kohlrabi and parsley.	Loopers	½ - 1
	Hornworms	¼ - ½
	Imported Cabbageworm	¼ - ½
	Diamondback Moth	-
	Green Cloverworm	¼ - ½
	Webworms	½ - 1
	*Armyworms	1 - 2
<b>Fruiting Vegetables</b> such as tomatoes, eggplants and peppers.	Loopers	½ - 1
	Hornworms	¼ - ½
	Tomato Fruitworm	1 (apply in a weekly preventative program)
	Variegated Cutworm	1
	Saltmarsh Caterpillar	½ - 1
	*Armyworms	1 - 2
<b>Cucurbit Vegetables</b> such as melons, cucumbers and squash.	Melonworms	1-2 (apply in a weekly preventative program)
	Rindworm complex	½-1 (apply in a weekly preventative program)
Tobacco	Loopers	½ - 1
	Tobacco Budworm	½ - 1
	Hornworms	¼ - ½
Safflower and Sugarbeets	Loopers	½ - 1
	Saltmarsh Caterpillar	½ - 1
Sunflowers, Soybeans and Peanuts	Loopers	½ - 1
	Green Cloverworm	¼ - ½
	Velvetbean Caterpillar	½ -

Alfalfa (hay and seed), Hay and Small Grains	Loopers Alfalfa Caterpillar European (Essex) Skipper	$\frac{1}{2}$ - 1 - $\frac{1}{4}$ $\frac{1}{4}$ - $\frac{1}{2}$
Cotton	Loopers **Tobacco Budworm **Cotton Bollworm	$\frac{1}{2}$ - 1 (full plant coverage needed) $\frac{1}{4}$ - 1 $\frac{1}{4}$ - 1
Flowers and Ornamentals (ground application only)	Loopers Tobacco Budworm Omnivorous Looper Omnivorous Leafroller Diamondback Moth *Armyworms Ello Moth (Hornworm) Io Moth Oleander Moth	$\frac{1}{2}$ - 1 $\frac{1}{2}$ - 1 $\frac{1}{2}$ - 1 $\frac{1}{2}$ - 1 - 1 - 2 $\frac{1}{4}$ - $\frac{1}{2}$ $\frac{1}{2}$ - 1 $\frac{1}{2}$ - 1
<b>Small Fruits and Berries</b> such as grapes, strawberries, blackberries and cranberries.	Loopers Grapeleaf Skeletonizer Grape Leafroller Achemia Sphinx Moth Saltmarsh Caterpillar Omnivorous Leafroller	$\frac{1}{2}$ - 1 - 1 (ground application only) $\frac{1}{2}$ - $\frac{3}{4}$ (ground application only) - $\frac{3}{4}$ (ground application only) 1 $\frac{1}{2}$ - 1

\*Bactec BT may be used to suppress small armyworms (1st and 2nd instars) when populations are light and full coverage ground sprays are applied.

\*\*For control of Tobacco Budworm and Cotton Bollworm, use Bactec BT to suppress light to moderate populations of newly hatched worms. Repeat treatments at 4 to 5 day intervals.

Once beneficial insects are no longer a factor, Bactec BT may be tank mixed with methomyl (such as Lannate® or Nudrin®) or an ovicide (such as Larvin® or Ovasyn®) to control light to moderate infestations of early instar larvae. Observe appropriate rate, frequency and boll load label restrictions. Methomyl will potentially cause reddening of cotton foliage - discontinue tank mix if reddening becomes excessive. Before using any tank mix, read the product labels for precautionary statements and use directions.



Crop	Pest	Lbs/100 Gallons (Ground Equipment)	Lbs/Acre (Aerial Application)
Stone Fruits, Nut Trees and Pomegranates	Redhumped Caterpillar	¼ - ½	- 1
	Tent Caterpillars	¼ - ½	½ - 1
	Omnivorous Leafroller	½ - 1	---
	Fall Webworm	¼ - ½	½
	Walnut Caterpillar	½ - 1	½ - 1
	Cankerworms	¼ - ½	½ - 1
Pome Fruits	Cankerworms	¼ - ½	½ - 1
	Gypsy Moth	½ - 1	1
	Variiegated Leafroller	½ - 1	---
	Redbanded Leafroller	½ - 1	---
	Tufted Apple Budmoth	½ - 1	---
	Tent Caterpillars	¼ - ½	½ - 1
Citrus	Fruittree Leafroller	½ - 1	---
	Orangedog	¼ - ½	---
Tropical Fruits	Loopers	½ - 1	---
	Hornworm	½ - 1	---
	Leafroller	½ - 1	---
	Omnivorous Looper	½ - 1	---
Forest, Shade, Sugar Maple and Ornamental Trees	Gypsy Moth	½ - 1	1
	Bagworm	½ - 1	½ - 1
	Redhumped Caterpillar	¼ - ½	¼ - 1
	Spring/Fall Cankerworm	¼ - ½	¼ - ½
	Fall Webworm	½	½
	Elm Spanworm	½ - 1	½ - 1
	Tent Caterpillars	¼ - ½	½
	California Oakworm	¼ - ½	¼ - ½
	Pine Butterfly	1	1
	Spruce Budworms	1	1
	Saddle Prominent Caterpillar	½ - 1	---
	Douglas Fir Tussock Moth	1	1
	Douglas Fir Tussock Moth	½ - 1	---
	Western Tussock Moth	½ - 1	---
	Fruittree Leafroller	1	---
	Blackheaded Budworm	½ - 1	---
Mimosa Webworm	½ - 1	¾ - 1	

\* Rate for hydraulic spray. For mist blowers, mix the amounts (Lbs) in 10 gallons of water.

\*\* For aerial application, use in 1 - 5 gallons of water depending on type and density of

Bactec BT 16 Biological Insecticide

Page 9 of 11

Last revision 9/14/98

trees. For best results, spray systems which deliver droplet size of LESS THAN 150 microns should be used.

### STORED AGRICULTURAL COMMODITIES

**Grains, soybeans, sunflower seed, crop seed, spices, herbs, birdseed and popcorn.**

Pest	Rate
Indian Meal Moth Almond Moth	¾ lb/100 bu (undiluted and diluted)*

\* As a surface treatment, apply 1 lb of Bactec BT in 10 gallons of water per 500 square feet of grain surface area. Mix into top 4 inches.

For the control and prevention of these pests, apply Bactec BT in a constantly agitated water suspension to the top four inches surface layer of grain in the bin. Use a sprinkler can or sprayer to apply the dosage into the grain stream as the last (top) four inch layer is augered into the bin. Mix 1/10 lb Bactec BT per gallon of water. Apply 0.6 pint of this mixture per bushel as grain is augered into storage. Or, sprinkle the dosage into the surface of the grain in the bin and mix thoroughly with a scoop or rake to the depth of four inches. More thorough coverage may be achieved by dividing the recommended dosage into three applications and mixing the grain between applications. For the protection of bagged grain, including popcorn, apply the dosage to the entire grain mass and mix thoroughly prior to bagging.

Treatments can be applied to stored grain at any time, but for best results, make application immediately after harvest before moth activity occurs. In areas where late fall harvested grains not subject to infestation because of low temperatures, application can be delayed until late winter or early spring before moth activity begins. Control for a full storage season should normally be expected; however, repeat application if infestation recurs.

This treatment controls moth larvae. If an infestation is present when the grain is treated, moth emergence may continue for several days. If immediate control of severe infestations is desired, grain should be fumigated prior to application of this treatment. Bactec BT will not control weevils or other beetles. Grain treated with Bactec BT can be used at any time after treatment for any use.

### Flue-Cured Tobacco

Pest	Rate
Tobacco Moth	0.4 oz / 100 lbs*

\*Apply 0.4 ounces (approximately 5 teaspoons) in one quart of water, per 100 pounds of

tobacco, as a fine mist spray. Avoid oversetting. Tobacco should have just enough moisture to be handled without shattering at the time of application.

**Tobacco to be Stored Up to Twelve Months:** Spray loose leaves as the tobacco is being bundled from the curing barn. For tobacco on sticks, treat both sides of leaves.

**Stored Tobacco:** For tobacco which is to be carried over, rebundle or restack sticks, fluff up tobacco and spray loose leaves. For tobacco that has been stored over three weeks, apply at first signs of infestation, promptly open bundles, spray loose leaves and then rebundle.

**Treatment of Storage Barns:** If tobacco has been treated, or is going to be treated, treatment of the floors and walls may be made to aid in control. Sweep out the area, especially cracks and corners, and all of the loose tobacco pieces in which the moth might breed. Make a spray mixture containing ½ ounces of Bactec BT per 2½ gallons of water. Apply this at a rate of ½ gallon per 1000 square feet of surface area. Be sure to spray into cracks and between floorboards.

#### **WARRANTY**

Plato Industries warrants that the product conforms to the description on the label and is reasonably fit for the purposes set forth on the label when used according to directions under normal use conditions, but neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, expressed or implied, extends to the use of this product contrary to label instructions; the buyer assumes the risk of any such uses.