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Fact sheet

HERCON® DISRUPT MICRO-FLAKE® LBAM

Light Brown Apple Moth Mating Disruptant

Controlled-Release Pheromone Dispensing Flakes for Control of Light Brown Apple Moth Using Aerial or Ground Application Equipment

This is an unregistered product approved under Section 18 of FIFRA

For Use In State of California Only - CA Reg. 8730-07010-EU

DISRUPT MICRO-FLAKE® LBAM

Hercon Disrupt Micro-Flake LBAM is an environmentally compatible insect pheromone product used in Integrated Pest Management (IPM) programs as an insect mating disruptant specifically to suppress populations of the new invasive pest species, Light Brown Apple Moth (LBAM), *Epiphyas postvittana*. The pheromone contained in the product is a synthetic version of the naturally occurring pheromone “perfume” produced by female LBAM moths to create distinctive scent trails attractive to male LBAM moths. The purpose of these scent trails is to function as a “sex attractant” to aid male moths in locating female moths for mating. Blanketing an area infested with LBAM with synthetic LBAM pheromone can mask these naturally produced scent trails. The pheromone plume produced by the female moth is then no longer distinct enough for the male moth to follow to the female, so the occurrence of successful mating and the size of subsequent LBAM populations are reduced. This environmentally friendly method of controlling pest insect populations is called “mating disruption.”

Disrupt Micro-Flake LBAM uses synthetically manufactured LBAM pheromone as its active ingredient, namely a blend of E-11-tetradecenyl acetate and E,E-9,11-tetradecadienyl acetate in a 20:1 ratio. The product is manufactured in the form of laminated polymer “sandwiches” or flakes, each 1/8” x 1/8” square, with the pheromone contained between two outer inert polymer protective layers. When the product is applied to areas infested with LBAM, the flakes slowly emit a small amount of LBAM pheromone into the area that is detectable only by male LBAM moths. The released pheromone permeates throughout the treated area covering up the distinct scent trails produced by female LBAM moths and disrupting the reproductive behavior of LBAM moths. **Disrupt Micro-Flake LBAM** targets only light brown apple moth and has no effect on other unrelated insects, fish, reptiles, birds, or mammals.

The recommended rate of application for **Disrupt Micro-Flake LBAM** is 136 grams or 0.3 lb (4.8 oz. by wt.) of product per acre. This is equal to 11,800 flakes per acre or about 1 flake for every 3.7 square feet at the 15 gram active ingredient per acre rate. If the higher rate of 25 grams of active ingredient is used, 227 grams or 0.5 lb (8 oz. by wt.) of product is applied per acre and results in 19,000 flakes per acre, or 1 flake every 2.3 square feet.

COMPONENTS

Disrupt Micro-Flake LBAM is manufactured using four main components; the pheromone blend (active ingredient), an inert polymer film, an inert polymer resin, and an inert biodegradable plasticizer. The product is manufactured in the form of a three-layered laminate or “sandwich” consisting of two outside barrier films, and a middle reservoir layer consisting of the pheromone, resin, and plasticizer. This laminate structure protects the contained pheromone from environmental degradation and rapid evaporation, permitting its useful controlled release over extended periods. When the laminate is cut into flakes, the pheromone slowly migrates through to the outside edges of the barrier films and is released from the surface of the flake over 80-90 days.

BIODEGRADABILITY

Following the release of its pheromone component, the remaining product consists mainly of inert polymer (“plastic”) that is very stable and can remain in the environment for many years. During the time the product is exposed to the environment several microscopic organisms, such as bacteria and molds, will attack the plasticizer present in the product, causing it to delaminate and break apart. Eventually only small particles of inert polymer will remain in the soil debris.

TOXICITY

The components found in **Disrupt Micro-Flake LBAM** have low oral toxicity. LD₅₀ values (lethal dosage of 50% of the tested population) are reported in milligram per kilogram of body weight. As a rule, the higher the number of milligrams reported for a chemical the less the material is considered to be toxic. The following chart is a list of the ingredients found in **Disrupt Micro-Flake LBAM** and their reported acute oral LD₅₀.

<u>Component</u>	<u>Acute Oral LD₅₀</u>
LBAM Pheromone	>17,600 mg/kg
Biodegradable Plasticizer	>22,000 mg/kg
Polymeric Resin	Not Determined
Polymeric Films	Not Determined

- Both the pheromone and the plasticizer have low inherent solubility. The fact that they are both incorporated into a polymer matrix makes it unlikely that significant exposure to aquatic organisms will occur. Recent toxicity studies conducted with the gypsy moth mating disruptant flake product (containing the same inerts as the LBAM product) with both loaded and blank flakes showed that the blank flakes, which exposed the inerts to daphnia, were not toxic at the highest levels of exposure.
- Both the polymeric resin and the polymeric films are described by manufacturers as “inert, indigestible.” They also are not expected to pose a threat to the environment due to the low volume of product applied to infested areas. At the low rate, the product is applied at 136 grams or 0.3 lb per acre. This is a little less than 1 cup of material spread over 1 acre.
- All of the inerts used in this formulation are on the Exempt From Tolerance list or List 4A or 4B of the EPA Inert Ingredient lists which permits this product to be used on food and feed crops.
- The active ingredient, an insect pheromone, has been listed as a “low risk” pesticide by the US Environmental Protection Agency.

NEARLY IDENTICAL PRODUCTS IN USE

The product concept and application methods for **Disrupt Micro-Flake LBAM** have been proven over many years by the following nearly identical products already registered by US EPA and in use in many states:

- 1) **Disrupt Micro-Flake LR** Leafroller Mating Disruptant
 - a. Uses Z-11 isomer form of the main component of the LBAM pheromone
 - b. Uses identical inert ingredients
 - c. Registered by US EPA (EPA Reg. No. 8730-69) and Washington State for use on food crops: apples, apricots, cherries, peaches, pears, & plums
 - d. Good results obtained against related Tortricid moth, Obliquebanded Leafroller

- 2) **Disrupt Micro-Flake CM** Codling Moth Mating Disruptant
 - a. Uses CM pheromone
 - b. Uses identical inert ingredients
 - c. Registered by US EPA (EPA Reg. No. 8730-65), California (Reg. No. 8730-65-AA), Pennsylvania, Washington State, and others for use on food crops: apples, peaches, pears, pecans, plums, prunes, nectarines, quinces, & walnuts
 - d. Good results obtained against related Tortricid moth, Codling Moth

- 3) **Disrupt Micro-Flake OFM** Oriental Fruit Moth Mating Disruptant
 - a. Uses OFM pheromone
 - b. Uses identical inert ingredients
 - c. Registered by US EPA (EPA Reg. No. 8730-66), California (Reg. No. 8730-66-AA), Pennsylvania, Washington State, and others for use on food crops: peaches, pears, nectarines, apples, apricots, plums, quinces, almonds, macadamias, & walnuts
 - d. Good results obtained against related Tortricid moth, Oriental Fruit Moth

- 4) **Disrupt II GM** Gypsy Moth Mating Disruptant
 - a. Uses GM pheromone
 - b. Uses nearly identical inert ingredients
 - c. Registered by US EPA (EPA Reg. No. 8730-55), most eastern states, many central states, and Texas for applications over forests; residential, municipal, and shade tree areas; recreational and park areas; shelter belts; rights of way; and other areas
 - d. Good results obtained in over 15 years of use in the National Gypsy Moth Program with aerial applications to 400,000 to 650,000 acres annually to slow and contain the spread of this pest without any incidence of adverse effects to non-target species or the environment

CONCLUSION

Disrupt Micro-Flake LBAM is an environmentally compatible pest-specific product with a high probability of success in helping to reduce the impact and contain the spread of the new invasive pest species, Light Brown Apple Moth, as part of an Integrated Pest Management (IPM) program. The product poses low risk of adverse effects to humans, non-target insect, fish, bird, animal, or other species, or the environment.