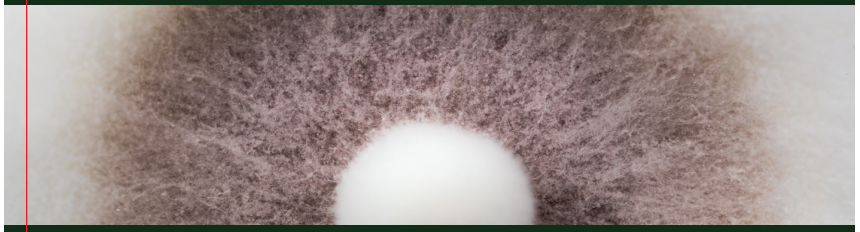
Koppert

ISARID™

WETTABLE POWDER MYCOINSECTICIDE

For Greenhouse, Nursery, Turfgrass, Golf Course, Commercial Livestock/Poultry, and Agricultural Uses



OMRI LISTED®

ACTIVE INGREDIENT

Isaria fumosorosea strain FE 9901*	18.0%
OTHER INGREDIENTS	82.0%
TOTAL	100.0%

*Contains a minimum of 2 x 10^9 colony forming units per gram of product (dry weight basis)

KEEP OUT OF REACH OF CHILDREN

CAUTION

See inside this booklet for additional Precautionary Statements, First Aid, complete Directions for Use and Warranty information.

MANUFACTURED FOR
Koppert Biological Systems, Inc.
1502 Old US 23
Howell, MI 48843

EPA Reg. No.: 89635-5
EPA Est. No.: 89635-MI-2

NET WEIGHT: 10 lbs. (4.5 kg)
ITEM NUMBER: US21001

v3.0(8.4)(24.11.20)

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Job 242319

Booklet Front Cover

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FIRST AID	
If on skin or clothing	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.
If inhaled	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.
If in eyes	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.
If swallowed	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 by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

HOTLINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or when going for treatment. For non-emergency information concerning this product, call the National Pesticide Information Center (NPIC) at 1-800-858-7378, Monday through Friday, 8:00 am to 12:00 pm Pacific Time (NPIC Website: www.npic.orst.edu). For emergencies, call your local poison control center at 1-800-222-1222.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals:

Caution. Harmful if absorbed through skin, inhaled, or swallowed. Causes moderate eye irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin, eyes or clothing. Avoid breathing dust or spray mist. 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.

Personal Protective Equipment (PPE):

Applicators and other handlers must wear:

- Protective eyewear
- Waterproof gloves
- Long-sleeved shirt and long pants
- Shoes and socks

Mixers/loaders and applicators must wear a minimum of a NIOSH-approved particulate filtering facepiece respirator with any N, R or P filter (if tank mixing with any oil-based adjuvants, spreaders, or spreader/stickers, use only R or P filters); OR a NIOSH-approved elastomeric particulate respirator with any R or P filter; OR a NIOSH-approved powered air-purifying respirator with an HE filter. (Repeated exposures to high concentrations of microbial proteins can cause allergic sensitization.)

Follow the manufacturer's instructions for cleaning/maintaining PPE. If no such instructions are available for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

Users should:

Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. 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: For terrestrial uses: Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean highwater mark. Do not contaminate water when disposing of equipment washwater or rinsate.

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 (REI). The requirements in this box 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 (REI) of twelve (12) hours.

PPE required 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
- Shoes plus socks
- Protective eyewear

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of the 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 or dusts have settled.

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PRODUCT INFORMATION

Isarid™ is labeled for use against whiteflies, aphids, thrips, psyllids, mealybugs, leaf hoppers, plant bugs*, weevils*, grasshoppers*, Mormon crickets, locust, beetles (including darkling beetles), mites (including russet and spider mites), bagrada bugs, lygus bugs, and fungus gnats* on labeled greenhouse plants (food crops, ornamentals, trees, shrubs, and ornamental grasses), nursery crops, turfgrass and turf landscapes, and outdoor agricultural food crops. This product is also effective against litter beetles (darkling, hide, and carrion), northern fowl mites, red poultry mites*, moths*, and gnats in commercial livestock or poultry houses. Isarid™ contains live spores of the fungus *Isaria fumosorosea* strain FE 9901. The spores are alive and may be harmed by storage at high temperatures (>86°F (>30°C)) or contact with water for more than 24 hours. ***Not Registered for Use By California**

INTEGRATED PEST MANAGEMENT (IPM)

Isarid™ works best in a pest management program designed to keep insect and mite populations below levels that damage plants and other food crops. Integrate Isarid™ into an overall pest management strategy whenever pesticide use is necessary. Follow practices known to reduce insect and mite population development. Consult local agricultural authorities for specific IPM strategies developed for your crop(s) and location.

USE RATE DETERMINATION

Carefully read and follow all label directions, use rates, and restrictions. For best results, apply Isarid™ at the first signs of the presence of pest larvae, nymphs, or eggs. For proper foliar application, determine the number of acres or square feet to be treated, determine the specified label use rate, and select the appropriate volume to give thorough and uniform coverage of all plant parts to be protected. For proper soil application, determine the number of acres or square feet to be treated, determine the specified label use rate, and select the appropriate volume to give good saturation of the soil. Prepare only the amount of spray or soil drench solution to treat the measured area. Calibrate spray equipment prior to use.

PRE-HARVEST INTERVAL

Isarid™ has a pre-harvest interval of zero (0) days. It can be applied up to and including the day of harvest.

APPLICATION DIRECTIONS

Compatibility:

Isarid™ may be combined with chemical pesticides for rapid knockdown of damaging pest populations or large numbers of insects or mites moving into labeled greenhouse plants (ornamentals, trees, shrubs, and ornamental grasses), nursery crops, or food crops. Isarid™ can also be used in combination with fertilizers and micronutrients. If tank mixes are desired, observe the most restrictive directions, precautions, and limitations on labeling of all products used. Do not exceed label application rates. Isarid™ cannot be mixed with any product containing a label prohibition against such mixing. Do not apply fungicides with Isarid™ within one week of Isarid™ application unless approved by Isarid™ manufacturer. Isarid™ can be applied to sterilized or fumigated soil, but it must be applied after a sterilization or fumigation active ingredient has dissipated. Applications of any other pesticides must be carefully studied, taking into account that the active ingredient of Isarid™ consists of a microorganism and any substance that could affect its viability must be avoided.

Phytotoxicity:

Isarid™ has shown plant safety but has not been tested on all varieties. Test Isarid™ on a small number of plants to check for potential damage before applying to a large number of plants.

Application Timing:

Apply Isarid™ throughout the growing season from early spring to late fall (when soil temperature is above 39°F (4°C) but less than 86°F (30°C)) to greenhouse plants (food crops, ornamentals, trees, shrubs, and ornamental grasses), nursery crops, turfgrass and turf landscapes, or outdoor agricultural food crops. For commercial livestock or poultry housing uses, apply when target pests are initially observed. Typically, it takes 3 – 7 days for an infected insect or mite to die and 7 – 10 days after the first spray to see a reduction in a pest population. Repeat applications 2 – 3 times at 15-day intervals sufficient to maintain suppression or shorter (5 – 8 days) depending on pest pressures.

Application rate, spray frequency, spray coverage and pest numbers affect the speed at which pest populations are reduced. Frequent scouting for pest is recommended. Isarid™ is most effective when used at the first appearance of pest larvae or nymphs in the crop or eggs on the leaves, before high pest populations develop.

Methods of Application:

Isarid™ can be applied using conventional spraying (ground, foliar, aerial, airblast, or chemigation) equipment to greenhouse plants (food crops, ornamentals, trees, shrubs, and ornamental grasses), nursery crops, turfgrass and turf landscapes, outdoor agricultural food crops within commercial livestock or poultry houses. Isarid™ may be applied through a variety of methods including foliar spray and soil treatment. Isarid™ can be applied using hand-held backpack spray equipment, low pressure watering nozzles such as fan nozzles, overhead boom-type sprayers or sprinklers, hydroponic systems, injectors, flood benches, drenching water systems, airblast, or aerial application. Clean application equipment before use of Isarid™ and use prepared sprays within 4 hours of preparation.

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Application Sites	Application Timing	Application Rates
Greenhouse Plants (Food Crops, Ornamentals, Trees, Shrubs, and Ornamental Grasses) and Nursery Crops	At the first signs of pest eggs, nymphs, or larvae.	**Foliar Applications:** ½ – 2 lb of Isarid™ per acre of greenhouse plants or nursery crops 2 – 8 oz of Isarid™ per 11,000 sq ft of greenhouse plants or nursery crops applied at a minimum of 0.1% solution (i.e., 16 oz of Isarid™ per 100 gallons of water) **Soil Applications:** **Prior to planting and at blending:** 14 – 28 oz of Isarid™ in 100 gallons of water applied to greenhouse plants or nursery crops as a soil drench at a rate of 1 gallon of solution per cubic foot of growing media 6 – 12 oz of dry Isarid™ incorporated into 1 yard of potting soil 6 – 12 oz of Isarid™ in 1 – 10 gallons of water incorporated into 1 yard of potting soil by spray application **Hydroponic Applications:** 6 – 16 oz of Isarid™ in 50 – 100 gallons of water in a recirculatory or a hydroponic liquid system
Turfgrass and Turf Landscapes Outdoor Agricultural Food Crops	At any stage of the crop. At the first sign of pest eggs, nymphs, or larvae.	**Soil Drench or Foliar Treatment:** ½ – 2 lb of Isarid™ per acre 2 – 8 oz of Isarid™ per 11,000 sq ft applied at a minimum of 0.1% solution (i.e., 16 oz of Isarid™ per 100 gallons of water)
Poultry and Livestock Housing* * If applying product to manure, apply only to poultry litter or livestock manure that is to be composted.	Repeat treatment at intervals of 3 to 7 days for small pest populations or as needed when target pests are emerging in large numbers. Do not apply more than 1 time per day.	**Backpack, Hand-held Sprayer or Tank-Mounted Sprayer with Wand:** 1 – 3 oz of Isarid™ per 12 gallons of water. Apply to all areas where animals congregate and insect and mite are present, including walkways, walls, window sills, cages, stalls, cracks and crevices.

GREENHOUSE PLANTS (FOOD CROPS, ORNAMENTALS, TREES, SHRUBS, AND ORNAMENTAL GRASSES) AND NURSERY CROPS

For suppression of whiteflies, aphids, thrips, psyllids, mealybugs, leaf hoppers, plant bugs*, weevils*, grasshoppers*, Mormon crickets, locust, beetles (including darkling beetles), mites (including russet and spider mites), bagrada bugs, lygus bugs, and fungus gnats* on labeled greenhouse plants (food crops, ornamentals, trees, shrubs, and ornamental grasses) and nursery crops. ***Not Registered for Use By California**

Application Instructions:
Remove Isarid™ from refrigeration and store at room temperature for at least 1 day prior to application. Repeat applications 2 – 3 times at 15-day intervals or shorter (5 – 8 days) for heavy infestations. Dissolve Isarid™ in an appropriate volume of water and mix with a stirring device for a homogeneous suspension. Use a minimum of 0.1% solution (i.e., 16 oz of Isarid™ per 100 gallons of water). For best results, use a non-ionic spreader-sticker in conjunction with application to foliar surfaces. Apply immediately using conventional spraying equipment or chemigation systems. If applying by chemigation, refer to the Chemigation section for requirements. Use a minimum pressure of 40 psi for manual or hand-held sprayers. Apply during low solar radiation (late afternoon or early evening) when there is a high relative humidity and the temperature is below 86°F (30°C).

Soil Drench: Mix 14 – 28 ounces of Isarid™ in 100 gallons of water to create solution. Apply solution as a drench to plants/growing media at a rate of 1 gallon per cubic foot of growing media. (This equates to enough solution to saturate soil without creating runoff.)

Foliar Treatment: Apply 2 – 8 ounces of Isarid™ per 11,000 square feet of greenhouse plants or nursery crops (½ – 2 pounds of Isarid™ per acre of greenhouse plants or nursery crops). Dissolve Isarid™ in 50 – 100 gallons of water and apply solution to foliage and blossoms. Apply enough solution for good coverage on labeled plants, trying to reach the lower sides of the leaves. Apply 26 gallons of solution per 11,000 square feet of small greenhouse plants or nursery crops and up to 100 gallons of solution per 11,000 square feet of full grown greenhouse plants or nursery crops.

Application to Soil at Blending: Any time prior to planting, incorporate 6 – 12 ounces of dry Isarid™ into 1 yard of potting soil during blending or mix 6 – 12 ounces of Isarid™ in 1 – 10 gallons of water and incorporate into 1 yard of soil as a spray during blending.

Hydroponic Systems: Use 6 – 16 ounces of Isarid™ in 50 – 100 gallons of water in a recirculatory or a hydroponic liquid system.

For Smaller Areas or Quantities: Mix 2 teaspoons of Isarid™ per gallon of water and apply to labeled plants or soil as described above.

TURFGRASS AND TURF LANDSCAPES

For suppression of whiteflies, aphids, thrips, psyllids, mealybugs, leaf hoppers, plant bugs*, weevils*, grasshoppers*, Mormon crickets, locust, beetles, (including darkling beetles), mites (including russet and spider mites), bagrada bugs, lygus bugs, and fungus gnats* on turfgrass, including uses on or around golf courses (tees, greens, fairways, roughs), sod farms, home lawns and landscapes, commercial lawns and landscapes, office buildings, apartment complexes, cemeteries, municipal and private parks, sports and athletic fields, and other such turf sites. Apply by soil drench or foliar spray to all cool and warm season grasses, including bluegrass, bentgrass, Bermuda grass (common & hybrid), fescue, orchard grass, Poa annua, St. Augustine, ryegrass, zoysia, mixtures, other grasses or ornamental turf, dichondra and other ground covers, and grasses grown for seed. ***Not Registered for Use By California**

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Application Instructions: Remove Isarid™ from refrigeration and store at room temperature for at least 1 day prior to application. Repeat applications 2 – 3 times at 15-day intervals or shorter (5 – 8 days) for heavy infestations. Dissolve Isarid™ in an appropriate volume of water and mix with a stirring device for a homogeneous suspension. Use a minimum of 0.1% solution (i.e., 16 oz of Isarid™ per 100 gallons of water). For best results, use a non-ionic spreader-sticker in conjunction with application to foliar surfaces. Apply immediately using conventional spraying equipment or chemigation systems or aerial application for large treatment areas such as turf and sod farms. If applying by chemigation, refer to the Chemigation section for requirements. If applying by air, refer to the Aerial Application section for requirements. Use a minimum pressure of 40 psi for manual or hand-held sprayers. Apply during low solar radiation (late afternoon or early evening) when there is a high relative humidity and the temperature is below 86°F (30°C).

Soil Drench: Use at planting, seeding, or transplant. Apply Isarid™ at ½ – 2 pounds per acre of turfgrass and turf landscape (2 – 8 ounces per 11,000 square feet of turfgrass and turf landscape) in 50 – 100 gallons of water via ground spray or through drip, overhead, or other irrigation systems listed in the Chemigation section.

Foliar Treatment: Use at planting, seeding, or transplant. Apply Isarid™ at ½ – 2 pounds per acre of turfgrass and turf landscape (2 – 8 ounces per 11,000 square feet of turfgrass and turf landscape) in 50 – 100 gallons of water via ground spray or through drip, overhead, or other irrigation systems listed in the Chemigation section. Do not apply to the point of runoff.

For Smaller Areas or Quantities: Mix 2 teaspoons of Isarid™ per gallon of water and apply to turf areas or soil as described above.

Aerial Application: Apply Isarid™ at ½ – 2 pounds per acre of turf/sod in 10 – 100 gallons of water. If applying by air, refer to the “Spray Drift Management” and “Special Considerations for Aerial Spray Drift Management” sections of the label.

AGRICULTURAL FOOD CROPS

For soil treatment or foliar application to fruits, vegetables, herbs, and other crops for suppression of whiteflies, aphids, thrips, psyllids, mealybugs, leaf hoppers, plant bugs*, weevils*, grasshoppers*, Mormon crickets, locust, beetles (including darkling beetles), mites (including russet and spider mites), bagrada bugs, lygus bugs, and fungus gnats*. ***Not Registered for Use By California**

Application Instructions: Remove Isarid™ from refrigeration and store at room temperature for at least 1 day prior to application. Repeat applications 2 – 3 times at 15-day intervals or shorter (5 – 8 days) for heavy infestations. Dissolve Isarid™ in an appropriate volume of water and mix with a stirring device for a homogeneous suspension. Use a minimum of 0.1% solution (i.e., 16 oz of Isarid™ per 100 gallons of water). For best results, use a non-ionic spreader-sticker in conjunction with application to foliar surfaces. Apply immediately using conventional spraying equipment (ground, foliar, airblast, aerial) or apply through chemigation systems. If applying by chemigation, refer to the Chemigation section for requirements. If applying by air, refer to the “Spray Drift Management” and “Special Considerations for Aerial Spray Drift Management” sections of the label. Use a minimum pressure of 40 psi for manual or hand-held sprayers. Apply during low solar radiation (late afternoon or early evening) when there is a high relative humidity and the temperature is below 86°F (30°C).

Soil Treatment Through Irrigation: Isarid™ may be used in drip, overhead, or other irrigation systems listed in the Chemigation section at any state of plant growth or at pre-plant as a soil treatment. Apply ½ – 2 pounds of Isarid™ per acre of labeled food crops (2 – 8 ounces of Isarid™ per 11,000 square feet of labeled food crops) in 50 – 100 gallons of water.

Soil Treatment At Planting: Use at planting, seeding, or transplant. Apply ½ – 2 pounds of Isarid™ per acre of labeled food crops (2 – 8 ounces of Isarid™ per 11,000 square feet of labeled food crops) in 50 – 100 gallons of water. Add half amount of water to tank. Then, add desired amount of Isarid™ followed by remaining amount of water. Agitate to ensure homogenous mixing.

Foliar Treatment: Apply ½ – 2 pounds of Isarid™ per acre of labeled food crops (2 – 8 ounces of Isarid™ per 11,000 square feet of labeled food crops) in 50 – 100 gallons of water via backpack spray or via drip, overhead, or other irrigation systems listed in the Chemigation section. Add half amount of water to tank. Then, add desired amount of Isarid™ followed by remaining amount of water. Agitate to ensure homogenous mixing. Apply solution to foliage and blossoms ensuring sufficient coverage to penetrate crop canopy.

For Smaller Areas or Quantities: Mix 2 teaspoons of Isarid™ per gallon of water and apply to plants or soil as described above.

Airblast Application: Apply Isarid™ at ½ – 2 pounds per acre of labeled food crops in 10 – 200 gallons of water. When spray droplets are applied using force air systems, ensure that nozzles provide accurate, uniform application to the target area only. The fan and any deflectors should allow for thorough coverage within the crop canopy.

Aerial Application: Apply Isarid™ at ½ – 2 pounds per acre of labeled food crops in 10 – 100 gallons of water. If applying by air, refer to the “Spray Drift Management” and “Special Considerations for Aerial Spray Drift Management” sections of the label.

ISARID™ may be used on all indoor and outdoor grown crops including, but not limited to:

- **Cereal Grains:** barley, wheat, buckwheat, rye, rice, sorghum, millet, popcorn, seed corn, sweet corn, and other cereal grains, small grains, and corn. When applying to rice, do not apply to flooded fields.
- **Oilseed:** cotton, canola, safflower, sunflower, and other oilseeds.
- **Nongrass Animal Feeds:** alfalfa, clover, vetch, and trefoil.
- **Cucurbit Vegetables:** cucumber, melon, gourd, squash, cantaloupe and other cucurbit vegetables.
- **Fruiting Vegetables:** eggplant, sweet pepper, hot pepper, tomato, tomatillo and other fruiting vegetables.
- **Herbs and Spices:** sage, rosemary, thyme, dill, basil, oregano and other herbs and spices.
- **Mint:** peppermint, spearmint, and other mints.
- **Brassica (Cole) Leafy Vegetables:** broccoli, Brussels sprouts, cabbage, cauliflower, collards, kale, kohlrabi, mustard greens, and other Brassica (cole) leafy vegetables.
- **Leafy Vegetables:** celery, endive, parsley, spinach, lettuce, watercress, and other leafy vegetables. When applying to watercress, do not apply to flooded fields.
- **Legume Vegetables:** snap and dry bean, lentil, succulent and dry pea, soybean and other legume vegetables.
- **Root/Tuber Vegetables:** sugar beet, carrot, ginger, ginseng, horseradish, potato, sweet potato, turnip, radish and other root/tuber vegetables.
- **Bulb Vegetables:** garlic, onion, leek, shallot, and other bulb vegetables.

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- **Stalk and Stem Vegetables:** asparagus.
- **Berry and Small Fruit:** blueberry, blackberry, strawberry, raspberry, loganberry, huckleberry, gooseberry, elderberry, currant, caneberry, and other berry and small fruit. When applying to cranberry, do not apply to flooded fields.
- **Citrus Fruit:** orange, grapefruit, lemon, tangerine, tangelo, lime, pummelo and other citrus fruit.
- **Grape:** wine grapes, table grapes, raisins, and other grape crops.
- **Pome Fruit:** apple, crabapple, pear, quince, mayhaw and other pome fruit
- **Stone Fruit:** apricot, cherry, nectarine, peach, plum, prune and other stone fruit
- **Tree Nuts:** almond, pistachio, pecan, walnut, filbert and other tree nuts.
- **Tropical and Subtropical Fruit, Inedible Peel:** avocado, mango, papaya, banana, plantain, and other tropical and subtropical fruit.
- **Tropical and Subtropical Fruit, Edible Peel:** olive.
- **Edible Fungi:** mushroom.
- **Miscellaneous:** peanut, tobacco, hops, hemp, and all crops grown for seed.

COMMERCIAL POULTRY HOUSES, LIVESTOCK BARNS, & ANIMAL HOUSING APPLICATION

Litter Beetles (Darkling, Hide and Carrion), Northern Fowl Mites, Red Poultry Mites*, Moths*, and Gnats ***Not Registered for Use By California**

Use 1 – 3 oz of Isarid™ per 12 gallons of water.

Apply as a coarse spray to poultry and livestock bedding, litter, floors, walls, cages, nest boxes, nest pads, cracks and crevices, and other housing equipment where pests collect, travel, rest, hide, harbor or breed. Apply when animals are not in the area being treated. Allow spray solution on treated area to dry thoroughly before animals reenter.

Application Restrictions: Do not apply in locations accessible to children, pets, domestic animals or wildlife. Do not apply where animals can lick the product. Do not apply to the point of run-off. Do not contaminate food, feed, potable water, or watering equipment. If applying product to manure, apply only to poultry litter or livestock manure that is to be composted. Treated poultry litter and livestock manure must be composted before being spread on field.

SPRAY DRIFT MANAGEMENT

Avoiding spray drift at the application site is the responsibility of the applicator and the grower. The interaction of many equipment- and weather-related factors determines the potential for spray drift. The applicator and the grower are responsible for considering all of these factors when making application decisions.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations which dispense sprays as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase nozzle pressure.

SPECIAL CONSIDERATIONS FOR AERIAL SPRAY DRIFT MANAGEMENT

The following drift management requirements must be followed to avoid off-target drift management from aerial applications to agricultural field crops.

1. The distance of the outermost nozzles on the boom must not exceed ¾ the length of the wingspan or rotor.
2. Nozzles must always point backward, parallel with the air stream and never be pointed downwards, more than 45 degrees. Where states have more stringent regulations, they must be observed.

Importance of 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 the "Wind", "Temperature and Humidity", and "Temperature Inversions" sections of this label).

Controlling Droplet Size:

- **Volume:** Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with the higher rated flows produce larger droplets.
- **Pressure:** Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of nozzles:** Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle orientation:** Orienting nozzles so that the spray is released backwards, parallel to the airstream, will produce larger droplets than other orientations. Significant deflection from the 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 larger droplets than other nozzle types.
- **Boom length:** For some use pattern, reducing the effective boom length to less than ¾ of the wing span or rotor length may further reduce drift without reducing swath width.
- **Application height:** Applications must 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 the exposure of the droplets to evaporation and wind.

Swath Adjustment

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

Wind

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

Temperature and Humidity

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

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Temperature Inversions
Applications must 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 product must 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).

Do not directly apply to any body of water.

Aircraft Maintenance
Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of Isarid™ accumulated during spraying or from spills. Prolonged exposure of Isarid™ to uncoated steel surfaces may result in corrosion and possible failure of the part. Landing gear is most susceptible. The maintenance of an organic coating (paint), which meets aerospace specification MIL- C-38413, may prevent corrosion.

Cleaning of Equipment
Spray equipment must be cleaned thoroughly before and after use of Isarid™.

GREENHOUSE, NURSERY, TURF, GOLF COURSE, AND FIELD CHEMIGATION

General Requirements:
- Apply Isarid™ at [4 – 16 oz per 11,000 sq ft of greenhouse plants, nursery crops, or agricultural food crops] [½ – 2 lbs per acre in 10 – 200 gallons of water to crops, nurseries, turfgrass, or golf courses] applied at a minimum of 0.1% solution (i.e., 16 oz Isarid™ per 100 gallons of water), depending on desired application.
- Apply Isarid™ only through 1) overhead boom and mist-type systems, 2) sprinklers such as impact or micro- sprinklers, center pivot, lateral move, end tow, side wheel roll, traveler, solid set, or hand-move systems, 3) pressurized drench (flood) or drip (trickle) systems, 4) micro-irrigation such as spaghetti tube or individual tube irrigation, 5) hand-held calibrated irrigation equipment such as hand-held wand with injector, and 6) ebb and flow systems. Do not apply this product through any other type of irrigation system.
- Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
- If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.
- Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.
- A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Application Instructions for All Types of Chemigation:
1. Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and entire injector system. Flush with clean water. Failure to provide a clean tank, void of scale or residues, may cause Isarid™ to lose effectiveness or strength.
2. Determine the treatment rates as indicated in the directions for use and make proper dilutions.
3. To mix in supply tank, fill tank half way with water and add Isarid™. Stir until completely dispersed. Fill tank with remaining amount of water.
4. Application of Isarid™ may be made continuously for the duration of the water application or can be applied at the end or after the water application.

Requirements for Chemigation Systems Connected to Public Water Systems:
1. Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
2. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, back flow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
3. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
4. The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
5. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Do not apply when wind speed favors drift beyond the area intended for treatment.
8. Continuous agitation is not required in pesticide supply tanks unless tank mixing with other products or fluid fertilizers that require it.

Sprinkler Chemigation Requirements:
1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back flow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

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3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Do not apply when wind speed favors drift beyond the area intended for treatment.
8. Continuous agitation is not required in pesticide supply tanks unless tank mixing with other products or fluid fertilizers that require it.

Drip (Trickle) Chemigation Requirements:

1. The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back flow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticde injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Use of a supply tank is recommended. Continuous agitation is not required in pesticide supply tanks unless tank mixing with other products or fluid fertilizers that require it.

Flood Chemigation Requirements:

1. Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the head of the greenhouse or nursery and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from back flow if water flow stops.
2. Systems utilizing a pressurized water and pesticide injection system must meet the following requirements:
   a. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back flow.
   b. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
   c. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
   d. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
   e. The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
   f. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
3. Use of a supply tank is recommended. Continuous agitation is not required in pesticide supply tanks unless tank mixing with other products or fluid fertilizers that require it.

STORAGE AND DISPOSAL

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

Pesticide Storage: Except when preparing product for application, store under refrigerated conditions (46°F (8°C)). When preparing for application, store at room temperature conditions (75°F (24°C)). The spores are alive and may be harmed by storage at high temperatures (>86°F(>30°C)) or contact with water for more than 24 hours. Protect from extreme heat and cold.
Pesticide Disposal: Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.
Container Handling: Nonrefillable container. DO NOT reuse or refill this container. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. 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. If burned, stay out of smoke.

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. Koppert Biological Systems, Inc. warrants that at the time of the first sale of this product it conforms to the chemical description on this 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 shall be replacement of the product or refund of the purchase price paid, at the option of Koppert Biological Systems, Inc.

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

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ISARID™

WETTABLE POWDER MYCOINSECTICIDE

For Greenhouse, Nursery, Turfgrass, Golf Course, Commercial Livestock/Poultry, and Agricultural Uses

ACTIVE INGREDIENT:

Isaria fumosorosea strain FE 9901*	18.0%
OTHER INGREDIENTS	82.0%
TOTAL	100.0%

*Contains a minimum of 2 x 10^9 colony forming units per gram of product (dry weight basis)

KEEP OUT OF REACH OF CHILDREN

CAUTION

See inside the booklet for additional Precautionary Statements, First Aid, complete Directions for Use and Warranty information.

FIRST AID	
If on skin or clothing	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.
If inhaled	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.
If in eyes	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.
If swallowed	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 by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

HOTLINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or when going for treatment. For non-emergency information concerning this product, call the National Pesticide Information Center (NPIC) at 1-800-858-7378, Monday through Friday, 8:00 am to 12:00 pm Pacific Time (NPIC Website: www.npic.orst.edu). For emergencies, call your local poison control center at 1-800-222-1222.

EPA Reg. No.: 89635-5
EPA Est. No.: 89635-MI-2

MANUFACTURED FOR
Koppert Biological Systems, Inc.
1502 Old US 23
Howell, MI 48843

NET WEIGHT
10 lb (4.5 kg)
ITEM NUMBER: US21001

BATCH CODE: See packaging
Not for sale or use after:

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals:
Caution. Harmful if absorbed through skin, inhaled, or swallowed. Causes moderate eye irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin, eyes or clothing. Avoid breathing dust or spray mist. 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.

Personal Protective Equipment (PPE):
Applicators and other handlers must wear protective eyewear, waterproof gloves, a long-sleeved shirt, long pants, shoes, and socks. Mixers/loaders and applicators must wear a minimum of a NIOSH-approved particulate filtering facepiece respirator with any N, R or P filter (if tank mixing with any oil-based adjuvants, spreaders, or spreader/stickers, use only R or P filters); OR a NIOSH-approved elastomeric particulate respirator with any R or P filter; OR a NIOSH-approved powered air-purifying respirator with an HE filter. (Repeated exposures to high concentrations of microbial proteins can cause allergic sensitization.)
Follow the manufacturer's instructions for cleaning/maintaining PPE. If no such instructions are available for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

Users should:
Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. 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: For terrestrial uses: Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean highwater mark. Do not contaminate water when disposing of equipment washwater or rinsate.

STORAGE AND DISPOSAL

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

Pesticide Storage: Except when preparing product for application, store under refrigerated conditions (46°F (8°C)). The spores are alive and may be harmed by storage at high temperatures (>86°F(>30°C)) or contact with water for more than 24 hours. When preparing for application, store at room temperature conditions (75°F (24°C)). Protect from extreme heat and cold.
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Container Handling: Nonrefillable container. DO NOT reuse or refill this container. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or mix tank. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. 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. If burned, stay out of smoke.

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PROOF

THIS PROOF IS TO BE CHECKED FOR ACCURACY

Please review and approve **Text, Spelling, Copy Placement, Size, Shape, Colors** and **Dieline.**

Authorized signature accepts responsibility for accuracy of all copy, color break and artwork. Cimarron Label is not liable for any discrepancies subsequently identified.

PLEASE NOTE: Due to color variance between printers/monitors, the colors represented by this proof cannot be deemed accurate. Please refer to a color matching system such as the Pantone Matching System for a truer representation of spot colors.

THIS PROOF IS NOT ACCURATE FOR COLOR-MATCH.

Dieline does not print.

Cimarron Label
Inovar

4201 North Westport Ave. • Sioux Falls, SD 57107
Phone: (605) 978-0451 • Fax: (605) 978-0463

DATE	JOB NUMBER	CUSTOMER
12-11-24	242319	Koppert Bio Systems, Inc.
LABEL SIZE	**BOOKLET SIZE**	
6.25" x 10.125"	6.25" x 8.75"	
LABEL COLORS	**BOOKLET OUTSIDE COLORS**	**BOOKLET INSIDE COLORS**
BLK	BLK, CYAN, MAG, YELLOW	BLK
PATTERN VARNISH: ☐ YES ☒ NO		

Form: CS 006B - 3/29/2017

☐ ***ARTWORK IS APPROVED*** ☐ ***REVISED PROOF NEEDED***

WE CANNOT PROCESS THIS ORDER WITHOUT AN AUTHORIZED SIGNATURE

Signed_____ **Date**_____