2024-6275
2025-04-09

GROUP	BM02	FUNGICIDE

ASPERELLO T34 Biocontrol

Biological Fungicide Wettable Powder

For suppression of wilt caused by *Fusarium oxysporum*, the partial suppression of post-emergence damping-off and crown rot caused by *Pythium* and *Phytophthora*, and the partial suppression of gummy stem blight caused by *Didymella bryoniae* in greenhouse ornamentals, specific greenhouse food crops, Cannabis produced commercially indoors, and partial suppression of grey mould (*Botrytis cinerea*) and crown rot (*Phytophthora* spp.) on greenhouse berries and small fruits

COMMERCIAL

READ THE LABEL BEFORE USING

ACTIVE INGREDIENT: *Trichoderma asperellum* strain T34 12.00 %

This wettable powder formulation contains a minimum of 12.00 % or 1 x 10^9 colony forming units per gram of dry weight.

REGISTRATION NO. 30229 PEST CONTROL PRODUCTS ACT

POTENTIAL SENSITIZER

Net Contents: 100 - 500 grams

Batch number:

Expiry date:

Manufactured by:
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Spanish Patent ES 2 188 385 B1
European Patent EP 1 400 586 B1
USA Patent US 7 553 657 B2

PRODUCT INFORMATION

ASPERELLO T34 Biocontrol is a biological fungicide containing dry conidia of the beneficial fungus *Trichoderma asperellum* strain T34 which is used preventatively for the suppression of fusarium wilt and partial suppression of seedling diseases caused by certain species of *Pythium*, *Phytophthora, Botrytis* and gummy stem blight on greenhouse crops.

The product must be applied repetitively, throughout the life of the crop in order to maintain the appropriate level of *Trichoderma* in the growing media or on the crop and obtain an optimal effect. To get the best results against soil-borne pathogens, start at plant propagation (sowing, seedlings, cuttings), follow up at transplanting and apply at regular intervals of 2 to 3 months afterwards. To optimize results against gummy stem blight (*Didymella bryoniae)*, start spraying at an early growth stage (seedlings) and apply at regular intervals of 7-10 days during the disease period.

ASPERELLO T34 Biocontrol, preventively applied, protects plants from diseases due to its capacity to colonize the growing media and the plant roots, creating a physical barrier against pathogens and competing directly for space and/or nutrients. Also, ASPERELLO T34 Biocontrol has a direct effect on the pathogenic fungus through parasitism and/or antibiosis. Finally, ASPERELLO T34 Biocontrol induces plant resistance responses (ISR).

ASPERELLO T34 Biocontrol germinates and grows around the crop roots in a wide range of soils and growing media. It develops in a variety of pH (4-9) and growing media temperatures (15-35ºC), but its optimal growth occurs at pH 6-8 and temperatures between 20-30ºC.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN. May cause sensitization. Avoid contact with skin, eyes and clothing. Avoid breathing dust. Workers and handlers (including mixer/loader, applicators, and early entry workers) must wear long sleeved shirt, long pants, shoes plus socks, waterproof gloves and eye goggles as well as NIOSH approved mist filtering mask or respirator when mixing/loading or applying the product and during all cleanup/repair activities. Wash thoroughly with soap and water after handling. Remove contaminated clothing and follow manufacturer’s directions for cleaning/maintaining PPE before re-use. If no such instructions are available, use clothing detergent and hot water for cleaning all washable PPE. Keep and wash PPE separately from other laundry. Wash hands before eating, drinking, chewing gum, using tobacco or using toilet. DO NOT store product near food or feed. DO NOT apply this product through any other type of irrigation system.

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 centre 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 centre or doctor for treatment advice.

If swallowed: Call a poison control centre 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 centre or doctor. Do not give anything by mouth to an unconscious person.

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 centre or doctor for further treatment advice.

General: Seek medical attention or contact a poison control centre IMMEDIATELY if irritation occurs and persists or is severe. Take the container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION: Treat symptomatically.

Compatibility:

The use of ASPERELLO T34 Biocontrol is recommended after 7-10 days from a soil or substrate sterilization, fumigation, solarization or biofumigation, once the sterilizing agent or fumigant has dissipated or as otherwise stated by the product Manufacturer.

ASPERELLO T34 Biocontrol should not be applied in a tank mix with other products (pesticides or liquid fertilizers). The impact of other products, applied before or after ASPERELLO T34 Biocontrol, on its performance has not been fully investigated. Some pesticides, particularly fungicides, may reduce the effectiveness of ASPERELLO T34 Biocontrol. Contact your Biobest advisor or consult the Side Effect List at Biobest website (www.biobestgroup.com) for more information on compatibility with other products.

Restrictions

It is not possible to evaluate the efficacy and/or phytotoxicity of ASPERELLO T34 Biocontrol on all plant species and varieties. It is recommended to conduct a small scale test by treating a limited number of plants, at recommended use rates, prior to initiating large scale use. Contact your Biobest advisor or consult Biobest website www.biobestgroup.com for more information.

Effectiveness of ASPERELLO T34 Biocontrol has been demonstrated in a range of growing media types including coir, peat, perlite, rockwool and soil.

DIRECTIONS FOR USE

ASPERELLO T34 Biocontrol can be applied by spraying, drenching, dipping or chemigation (including drip (trickle) irrigation, furrow, hand held, overhead boom, sprinkler and other irrigation systems).

Application equipment should be thoroughly cleaned before use so that no traces of previous pesticides remain. Suspend the correct amount of ASPERELLO T34 Biocontrol in a small amount of water and shake to obtain good product dispersion. Add this suspension to the application tank, complete by adding the total volume of water necessary to treat the crop, stirring continuously to ensure a homogeneous application of the product.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes. DO NOT allow effluent or runoff from greenhouses containing this product to enter lakes, streams, ponds or other waters.

When chemigation is used, make sure ASPERELLO T34 Biocontrol reaches the roots in the late afternoon and that it leaves the irrigation system as soon as possible. This will minimize the wash-out risk and help obtain a good installation around the roots.

Application equipment should be thoroughly cleaned after use.

Crops	Diseases	Application type	Rate	Remarks
Greenhouse ornamentals	For suppression of fusarium wilt (*Fusarium oxysporum*) For partial suppression of post-emergence damping off and crown rot (*Pythium aphanidermatum*)	Incorporation in the growing media	10 g/m^3 of growing media	If mixing with water for application, use 50-100 L of water per m^3 of growing media.
		Spray/drench (seedtrays, multipots & other types of seedling containers)	0.5 g/m^2 In sufficient water (5L per m^2)	Dose calculated for a depth of 5cm, adjust rate for greater depths.
		Root bath (long dip) for cuttings & plug trays to suppress fusarium wilt	1 g/100 L water	
		Chemigation after planting	5 g/50-100 L water per m^3 growing media	Repeat this application one week later if plants were not treated during propagation.

			(per 1000 1L pots)	Apply a follow-up treatment every 2-3 months.
Greenhouse cucurbit vegetables (Crop Group 9)	For suppression of fusarium wilt (*Fusarium oxysporum*) For partial suppression of post-emergence damping off and crown rot (*Pythium aphanidermatum*, *Phytophthora capsici*)	Incorporation in the growing media	10 g/m^3 of growing media (or 10 g/1000 1L pots)	If mixing with water for application, use 50-100 L of water per m^3 of growing media
		Spray/drench (seedtrays and multipots & other types of seedling containers)	0.5 g/m^2 In sufficient water (5 L per m^2)	Dose calculated for a depth of 5 cm, adjust rate for greater depths.
		Chemigation after planting	5-10 g per 50-100 L of water per m^3 of growing media (or per 1000 1L pots)	Apply a follow up treatment every 2-3 months. Use the higher rate in high susceptible crops or if a high disease pressure is predicted.
	For partial suppression of gummy stem blight (*Didymella bryoniae*)	Foliar spray	0.6-1 kg/ha in sufficient water (500-1000 L/ha)	In sufficient water to thoroughly wet the crop but avoiding run off. Start the application at an early growth stage and repeat at 7 to 10 day intervals for as long as the pathogen is present or conditions are conducive to disease.
Greenhouse fruiting vegetables (Crop Group 8-09)	For suppression of fusarium wilt (*Fusarium oxysporum*) for tomato and pepper **ONLY** For partial suppression of post-emergence damping off and crown rot (*Pythium aphanidermatum*) For partial suppression of post-emergence damping off and crown rot (*Phytophthora capsici*) on tomato, pepper, and eggplant **ONLY**	Incorporation in the growing media	10 g/m^3 of growing media (or 10 g/1000 1L pots)	If mixing with water for application, use 50-100 L of water per m^3 of growing media
		Spray/drench (seedtrays and multipots & other types of seedling containers)	0.5 g/m^2 In sufficient water (5 L per m^2)	Dose calculated for a depth of 5 cm, adjust rate for greater depths
		Chemigation after planting	5-10 g per 50-100 L of water per m^3 of growing media (or per 1000 1L pots)	Apply a follow up treatment every 2-3 months. Use the higher rate in high susceptible crops or if a high disease pressure is predicted.
Greenhouse strawberries	For suppression of fusarium wilt (*Fusarium oxysporum*) For partial suppression of post-emergence damping off and crown rot (*Pythium aphanidermatum*)	Incorporation in the growing media	10 g/m^3 of growing media (or 10 g/1000 1L pots)	If mixing with water for application, use 50-100 L of water per m^3 of growing media
		Spray/drench (seedtrays and multipots & other types of seedling containers)	0.5 g/m^2 In sufficient water (5L per m^2)	Dose calculated for a depth of 5 cm, adjust rate for greater depths.

	For partial suppression of crown rot (*Phytophthora cactorum*)	Chemigation after planting	5-10 g per 50-100 L of water per m^3 of growing media (or per 1000 1L pots)	Apply a follow up treatment every 2-3 months. Use the higher rate in high susceptible crops or if a high disease pressure is predicted.
Cannabis produced commercially indoors	For suppression of fusarium wilt (*Fusarium oxysporum*) For partial suppression of post-emergence damping off and crown rot (*Pythium aphanidermatum*)	Incorporation in the growing media	10 g/m^3 of growing media (or 10 g/1000 1L pots)	If mixing with water for application, use 50-100 L of water per m^3 of growing media
		Spray/drench (seedtrays and multipots & other types of seedling containers)	0.5 g/m^2 In sufficient water (5L per m^2)	Dose calculated for a depth of 5cm, adjust rate for greater depths.
		Chemigation after planting	5-10 g per 50-100 L of water per m^3 of growing media (or per 1000 1L pots)	Apply a follow up treatment every 2-3 months. Use the higher rate in highly susceptible crops or if a high disease pressure is predicted.
Greenhouse vegetable transplants of: Cucurbit vegetables (Crop Group 9) Fruiting vegetables (Crop Group 8-09) Brassica leafy vegetables (Crop Group 5) Bean Pea Onions Garlic Strawberry Lettuce Spinach Swiss chard Celery	For suppression of fusarium wilt (*Fusarium oxysporum*) on greenhouse vegetable transplants of cucurbit vegetables (Crop Group 9), lettuce, spinach, swiss chard, celery, bean, pea, onion, garlic, brassica leafy vegetables (Crop Group 5), tomato, pepper, and strawberry **ONLY** For partial suppression of post-emergence damping off and crown rot (*Pythium aphanidermatum*) on greenhouse vegetable transplants of cucurbit vegetables (Crop Group 9), lettuce, spinach, swiss chard, pea, brassica leafy vegetables (Crop Group 5), fruiting vegetables (Crop Group 8-09), and strawberry **ONLY** For partial suppression of post-emergence damping off and crown rot (*Phytophthora capsici*) on greenhouse vegetable transplants of cucurbit vegetables (Crop Group 9), bean, tomato, pepper, and eggplant **ONLY**	Incorporation in the growing media	10 g/m^3 of growing media (or 10 g/1000 1L pots)	If mixing with water for application, use 50-100 L of water per m^3 of growing media
		Spray/drench (seedtrays and multipots & other types of seedling containers)	0.5 g/m^2 In sufficient water (5L per m^2)	Dose calculated for a depth of 5cm, adjust rate for greater depths.
		Chemigation after planting	5-10 g per 50-100 L of water per m^3 of growing media (or per 1000 1L pots)	Apply a follow up treatment every 2-3 months. Use the higher rate in highly susceptible crops or if a high disease pressure is predicted.

Incorporation in the growing media used for propagation

Apply a dose of 10 grams of ASPERELLO T34 Biocontrol per m^3 of propagation growing media (or per 1000 1L pots) before sowing, sticking or potting. Mix the 10 grams ASPERELLO T34 Biocontrol directly into the growing media or into 50-100L of water and add to a m^3 of growing media (volume of 50-100 mL of water per L pot = 5-10% of pot volume).

Spray/drench of growing media used for propagation

A treatment with a spray or drench to a m^2 of cultivated area with seedtrays, multipots or other types of seedling containers 5 cm in depth or less, can also be prepared using a rate of 0.5 grams of ASPERELLO T34 Biocontrol mixed in 5 L of water. Application can take place before or just after sowing, sticking or planting. A suspension prepared of 10 grams of ASPERELLO T34 Biocontrol in 100 L water will treat 20 m^2 of propagated area (5 L of suspension per m^2 = 0.5 grams of ASPERELLO T34 Biocontrol per m^2).

Root bath (long dip)

Dip the roots of the cuttings for several hours or overnight in a suspension containing 1 g of ASPERELLO T34 Biocontrol in 100 L of water (or 0.01 g ASPERELLO T34 Biocontrol in 1 L water).

Chemigation of container-grown crops at planting or during the crop season

Apply 5-10 grams of ASPERELLO T34 Biocontrol in 50-100 L of water per m^3 of growing media at planting. The rate of 10 g/ 50-100L water /m^3 of growing media can be split in two applications of 5 g/ 50-100Lwater/ m^3 of growing media at one week intervals.

Repeat the treatment every 2-3 months as a follow-up treatment. Use the higher rate in highly susceptible crops or when a high disease pressure is anticipated.

Foliar Application

Spray ASPERELLO T34 Biocontrol at the rate of 0.6 - 1 kg/ha in a sufficient water volume (500-1000 L/ha) depending on plant development to thoroughly wet the crop but avoiding run off. Begin applications prior to disease development or at the beginning of the symptoms. Reapply every 7-10 days when the conditions are expected to be conducive for disease development.

Maximum total concentration: Do not exceed the maximum concentration of 10 g/L water.

MINOR USES

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS:

The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than Biocontrol Technologies, under the User Requested Minor Use Label Expansion program. For these uses, Biocontrol Technologies has not fully assessed performance (efficacity) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

Crops	Diseases	Application type	Rate	Remarks
Greenhouse berries and small fruits (Crop Group 13-07)*	For partial suppression of grey mould (*Botrytis cinerea*) and crown rot (*Phytophthora* spp.)	Incorporation in the growing media	10 g/m^3 of growing media (or 10 g/1000 1L pots)	
		Spray/drench	0.5 g/m^2 In sufficient water (5L per m^2)	Apply a follow up treatment every 2 – 3 months
		Chemigation after planting	5-10 g per 50-100 L of water per m^3 of growing media (or per 1000 1L pots)	Apply a follow up treatment every 2 – 3 months

		Foliar	0.6 to 1 kg/ha In sufficient water (500-1000 L/ha)	In sufficient water to thoroughly wet the crop but avoiding run off. Apply a follow up treatment every 7 to 10 days

Application Timing (Crop / pest stage): Use preventatively.

Number of Applications: Unlimited

***Crop Group 13-07 – Berries and Small fruits:** Amur River grape; Aronia berry; Bayberry; Bearberry; Bilberry; Blackberry; Blueberry, highbush; Blueberry, lowbush; Buffalo currant; Buffaloberry; Che; Chilean guava; Chokecherry; Cloudberry; Cranberry; Currant, black; Currant, red; Elderberry; European barberry; Gooseberry; Grape; Highbush cranberry; Honeysuckle, edible; Huckleberry; Jostaberry; Juneberry; Kiwifruit, fuzzy; Kiwifruit, hardy; Lingonberry; Loganberry; Maypop; Mountain pepper berries; Mulberry; Muntries; Native currant; Partridgeberry; Phalsa; Pincherry; Raspberry, black; Raspberry, red; Riberry; Salal; Schisandra berry; Sea buckthorn; Serviceberry; Strawberry; Wild raspberry; Cultivars, varieties and/or hybrids of these

Restricted Entry Intervals

For foliar spray applications: DO NOT enter or allow worker entry into treated areas for 4 hours or until sprays have dried, unless wearing appropriate personal protective equipment, i.e. waterproof gloves, long-sleeved shirt, long pants and socks with shoes, and a NIOSH-approved respirator/mask.

For soil incorporation applications: DO NOT enter or allow worker entry into treated areas for 4 hours or until dust has settled, unless wearing appropriate personal protective equipment including waterproof gloves, long-sleeved shirt, long pants, socks with shoes and a NIOSH-approved dust filtering respirator or a NIOSH-approved dust filtering mask.

Can be applied up to and including the day of harvest. The preharvest interval is 0 days.

STORAGE: ASPERELLO T34 Biocontrol should be stored in a cool dry place (4 ºC). At this temperature, the product is viable for two years. Do not contaminate water, food, or feed during storage. Keep product in original container during storage and keep container lid tightly closed when not in use.

DISPOSAL:

1. Triple- or pressure-rinse the empty container. Add the rinsing to the spray mixture in the tank.
2. Follow provincial instruction for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.
5. For information on disposal of unused, unwanted product, contact the manufacturer or provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.