



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460**

**OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION**

September 27, 2023

Samantha Miller
Corteva Agriscience
9330 Zionsville Road
Indianapolis, IN 46268

Subject: Registration Amendment – Amended Terms and Conditions, and Revised Labeling
Product Name: Lumiderm Insecticide Seed Treatment
EPA Registration Number: 352-858
Application Date: June 13, 2023
Decision Number: 593332

Dear Ms. Miller:

The amended label referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is acceptable. Accordingly, EPA has approved the requested registration amendment, provided Corteva Agriscience (“Corteva”) complies with all terms and conditions listed below.

Terms and Conditions

Corteva must comply with all the following terms and conditions. Release for shipment of these products constitutes acceptance of the below conditions. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6.

Endangered Species Protection and Formal Consultation

1. For this action, EPA conducted effects determinations under the Endangered Species Act (ESA). In its final effects determinations (included in a biological evaluation), EPA made may affect, likely to adversely affect (LAA), determinations for certain listed species and designated critical habitats for products containing cyantraniliprole (including this product). For these LAA determinations, EPA also assessed the potential likelihood of jeopardy or adverse modification in its effects determination, consistent with 50 C.F.R. § 402.40(b)(1). EPA predicted no potential likelihood of jeopardy for listed species or adverse modification for designated critical habitat. On September 25, 2023, EPA initiated formal consultation with the Services. The Services will make the final determination as to the potential for jeopardy for listed species or adverse modification for designated critical habitat in any final biological opinions issued at the completion of consultation.

If, following formal consultation with Service(s), additional modifications are identified in any applicable Biological Opinion, EPA will notify Corteva in writing within 45 calendar days of the issuance of the Biological Opinion of any necessary changes. Within 30 calendar days of receiving EPA's notice, Corteva must submit an amendment application incorporating the necessary changes, including amended labels. Alternatively, Corteva may respond by submitting a request for voluntary cancellation of this product. If Corteva fails to comply with this term, Corteva has agreed in prior written acceptance of these terms that EPA may cancel the registration under an expedited process under FIFRA 6(e).

Implementation of Revised Labeling

2. To ensure the prompt adoption of the mitigations in this registration amendment in newly produced product and previously produced product that is still under Corteva's control, Corteva must submit state registrations for approval, in all states where products are currently registered, for the products with the labeling associated with this approval letter no later than November 30, 2023.
3. In accordance with 40 C.F.R. § 152.130(c), product may be distributed or sold by Corteva under the previously approved labeling for no longer than 12 months from the date of this letter or 75 days after the final state approval from those submitted under Term #2, whichever is earlier.
4. Nothing in Terms #2-3 should be read to obligate Corteva to provide additional labeling for product that bears the previously approved label but is not under Corteva's control as of the date of this letter. However, Corteva should conduct outreach for users of this product to update them on the forthcoming changes to the label and their importance in mitigating potential effects to listed species and avoiding violations of the Endangered Species Act.

EPA's Rationale for Approving This Registration Amendment

FIFRA section 3(c)(5) requires EPA to unconditionally approve a registration amendment if:

- "its composition is such as to warrant the proposed claims for it";¹
- "its labeling and other material required to be submitted comply with the requirements of [FIFRA]";²
- "it will perform its intended function without unreasonable adverse effects on the environment";³ and

¹ FIFRA § 3(c)(5)(A), 7 U.S.C. § 136a(c)(5)(A). Here, EPA reviewed the proposed labeling and determined that the claims made for the product were consistent with composition of the product based on the data submitted.

² FIFRA § 3(c)(5)(B), 7 U.S.C. § 136a(c)(5)(B). Here, EPA reviewed the submitted labeling and other materials submitted and found them to be compliant with the requirements of FIFRA. Additionally, there are no data gaps.

³ FIFRA § 3(c)(5)(C), 7 U.S.C. § 136a(c)(5)(C).

- “when used in accordance with widespread and commonly recognized practice it will not generally cause unreasonable adverse effects on the environment.”⁴

Prior to approving the previous registrations and registration amendments for this product and others containing cyantraniliprole, EPA considered risks and benefits of approving the registrations and registration amendments. To determine the risks and benefits, the Agency reviews a large body of information to determine the effects of using these products. In assessing the risks from use of products containing cyantraniliprole, EPA has conducted both human health risk assessments⁵ and ecological and environment fate risk assessments.⁶ EPA also updated its ecological and environmental fate risk assessments in support of the 2023 draft biological evaluation (BE).⁷ EPA believes that that these risk assessments (and the benefits discussed below) are also applicable to the action to approve this amended registration.

In the human health risk assessments, EPA did not select an acute dietary toxicity endpoint because the Agency did not identify any effect attributed to a single dose (*i.e.*, CTP is not expected to pose an acute risk to humans). In general, CTP produces both adverse and adaptive changes in the liver, thyroid gland, and adrenal cortex. With repeat dosing, consistent findings of mild to moderate

⁴ FIFRA § 3(c)(5)(D), 7 U.S.C. § 136a(c)(5)(D).

⁵ Summary of Analytical Chemistry and Residue Data (Jan. 25, 2013) ([EPA-HQ-OPP-2011-0668-0009](#)); Dietary Exposure and Risk Assessment (Jan. 29, 2013) ([EPA-HQ-OPP-2011-0668-0010](#)); Occupational and Residential Exposure and Risk Assessment for the Proposed New Uses of the New Active Insecticide Cyantraniliprole (Feb. 28, 2013) ([EPA-HQ-OPP-2011-0668-0011](#)); Aggregate Human Health Risk Assessment for the Proposed New Uses of the New Active Insecticide Cyantraniliprole (Mar. 7, 2013) ([EPA-HQ-OPP-2011-0668-0012](#)); Chronic Aggregate Dietary Exposure and Risk Assessments in Support of a Section 3 Registration Action (Sept. 7, 2016) ([EPA-HQ-OPP-2014-0357-0009](#)); Human Health Risk Assessment for Various Proposed Uses and Several Tolerance Requests without U.S. Registration (Jan. 12, 2017) ([EPA-HQ-OPP-2014-0357-0011](#)); Summary of Analytical Chemistry and Residue Data (Apr. 21, 2016) ([EPA-HQ-OPP-2014-0357-0012](#)); Summary of Analytical Chemistry and Residue Data (Aug. 8, 2016) ([EPA-HQ-OPP-2014-0357-0013](#)); Human Health Risk Assessment for Proposed Uses and Tolerance Requests on Coffee; Caneberry Subgroup 13-07A; Low Growing Berry Subgroup 13-07H, Except Strawberry, Lowbush Blueberry and Lingonberry; Brassica Leafy Greens Subgroup 4-16A; Leafy Greens Subgroup 4-16B (June 20, 2018) ([EPA-HQ-OPP-2017-0694-0011](#)); Chronic Aggregate Dietary Exposure and Risk Assessments for Proposed Uses and Tolerance Requests on Coffee; Caneberry Subgroup 13-07A; Low Growing Berry Subgroup 13-07H, Except Strawberry, Lowbush Blueberry and Lingonberry; Brassica Leafy Greens Subgroup 4-16A (May 30, 2018) ([EPA-HQ-OPP-2017-0694-0012](#)); Human Health Risk Assessment for an Inadvertent Tolerance on Sugarcane (Feb. 28, 2022) ([EPA-HQ-OPP-2021-0154-0007](#)); Highly Refined Chronic Aggregate Dietary Exposure and Risk Assessments for Proposed Inadvertent Use and Tolerance Request on Sugarcane (Feb. 28, 2022) ([EPA-HQ-OPP-2021-0154-0008](#)).

⁶ Environmental Fate and Ecological Risk Assessment for the Registration of the New Chemical Cyantraniliprole – Amended (April 30, 2013) ([EPA-HQ-OPP-2011-0668-0008](#)); Environmental Risk Assessment of Proposed New Global Chemical Cyantraniliprole – Addendum (Jan. 24, 2014) ([EPA-HQ-OPP-2011-0668-0055](#)); Revised Drinking Water Assessment including Ground Water Exposure Refinements for Proposed New Uses on Leafy, Bulb, Fruiting, and Cucurbit Vegetables with Two Seasons of Applications (June 9, 2016) ([EPA-HQ-OPP-2014-0357-0010](#)); Ecological Risk Assessment and Drinking Water Assessment for the IR-4 New Use Petition for Pronamide on Low Growing Berry Subgroup except Strawberry, Subgroup 13-07H; Stone Fruit Crop group 12-12; Pome Crop Group 11-10; Caneberry subgroup 13-07A; Bushberry subgroup 13-07B; and Small Fruit Vine Climbing Subgroup (except Fuzzy Kiwifruit Subgroup 13-07F) (May 14, 2018) ([EPA-HQ-OPP-2017-0694-0013](#)).

⁷ See EPA’s Draft Biological Evaluation for Cyantraniliprole and supporting documentation, available at [EPA-HQ-OPP-2011-0668](#), Document ID Nos. 71-72, 75-87.

increases in liver weights are observed across multiple species (rats, mice, dogs). CTP was classified as “not likely to be carcinogenic to humans” based upon data demonstrating lack of treatment-related increase in tumor incidence in rats and mice. No cumulative effects were identified. CTP presents no mutagenicity, neurotoxicity, immunotoxicity, developmental reproductive toxicity.

In the environmental risk assessments, EPA identified risks of concern for both aquatic and terrestrial invertebrates. Overall, however, the major risks of concerns are for direct effects to freshwater, estuarine/marine, and benthic invertebrates. EPA did not identify direct risks of concerns for birds, reptiles, amphibians, freshwater fish, terrestrial plants, or aquatic plants.

EPA also considered the benefits of products containing cyantraniliprole, including CTP’s activity on a wide variety of target insects on a variety of crops. CTP is effective for controlling aphids, weevils and thrips—all major agricultural pests. CTP is not expected to pose any acute risk to humans and was registered in 2013 as a reduced risk pesticide due to it posing lower relative risk to alternative chemicals available at that time. CTP also poses lower risk to non-target organisms relative to alternatives and is compatible with IPM practices.

This amended registration includes additional mitigation measures to address effects to listed species, including the following:

- Requirement that applicators use coarse/coarser droplets for ground and aerial applications to reduce spray drift
- Requirement that aerial applications abide by wind-directional buffers, as identified in Bulletins Live Two (BLT), also to reduce spray drift
- Increase in distance of vegetative filter strips from 25 to 30 feet to mitigate the potential for runoff to aquatic habitats
- Use of a 25’ buffer for airblast applications to dormant, non-bearing and/or vegetation that is not yet fully leafed out
- Requirement that treated seeds be immediately covered or collected if spilled during loading

After consideration, EPA has determined that approving this amended registration will not cause unreasonable adverse effects because the amended registrations are not expected to result in increased exposures⁸ and because EPA continues to believe that—consistent with the 2014 registration decision⁹ and other previous registration decision for products contain cyantraniliprole—the benefits of these registrations outweigh any remaining risks of concern from its use and there are no human dietary risks from uses of cyantraniliprole that are inconsistent with

⁸ While the mitigations in the amended registrations are intended to reduce exposures to listed species, EPA expects that the mitigations will (1) not increase exposures to other non-listed non-target organisms, and (2) will generally reduce exposures to all non-target organisms (both listed and non-listed).

⁹ For EPA’s full risk-benefit analysis, *see* Registration of New Active Ingredient Cyantraniliprole, at 13-14 (Jan. 24, 2014) ([EPA-HQ-OPP-2011-0668-0057](#)).

the FFDCA safety standard.¹⁰ Accordingly, EPA is approving these registration amendments because the FIFRA registration standard is met.

Conclusion

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. Consistent with Terms 2-5 above, and notwithstanding 40 C.F.R. § 152.130(c), you may only distribute or sell¹¹ this product under either the final stamped label associated with this approval letter or with accompanying labeling that incorporates the mitigations in this registration amendment.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under FIFRA and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 C.F.R. § 156.10(a)(5) lists examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA-approved registration, the product will be referred to EPA's Office of Enforcement and Compliance.

If you have any questions, please contact Gene Benbow at 703-712-9669 or at benbow.gene@epa.gov.

Sincerely,



Deanna (Dee) Colby, Chief
Invertebrate & Vertebrate Branch 3
Registration Division
Office of Pesticide Programs

Enclosure

¹⁰ See FIFRA § 2(bb) (defining “unreasonable adverse effects on the environment” as, in relevant part, “any unreasonable risk to [humans] or the environment, taking into account the economic, social, and environmental costs and benefits of the use of the pesticide” or any “human dietary risks” from pesticidal residues in or on food).

¹¹ See FIFRA § 2(gg), 7 U.S.C. § 136(gg); 40 C.F.R. § 152.3.

(Base label):

CYANTRANILIPROLE	GROUP	28	INSECTICIDE
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Lumiderm®

INSECTICIDE SEED TREATMENT

[Alternate Brand Name: Lumiderm]

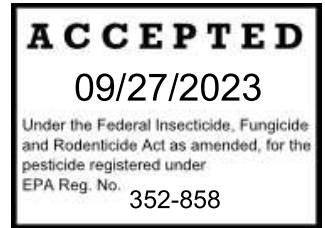
[Alternate Brand Name: Lumiposa]

For seed treatment applications to rapeseed/canola, mustard, and soybean seed for pest management of sucking and chewing insects.

Active Ingredient

Cyantraniliprole 3-bromo-1-(3-chloro-2-pyridinyl)-N-[4-cyano-2-methyl-6- [(methylamino) carbonyl]phenyl]-1H-pyrazole-5-carboxamide.....	50%
Other Ingredients	50%
TOTAL	100%

Lumiderm is a flowable suspension.
Contains 5.21 lb. active ingredient per gallon.



Keep Out of Reach of Children
CAUTION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

Precautionary Statements

Hazards to Humans and Domestic Animals

Personal Protective Equipment

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants.
- Shoes plus socks.
- Chemical resistant gloves made of any waterproof material (Category A such as natural rubber > 14 mils).

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

User Safety Recommendations

USERS SHOULD:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside.
- Then wash thoroughly and put on clean clothing.

First Aid

For questions regarding emergency medical treatment, you may contact **1-800-992-5994** for information.

Environmental Hazards

This pesticide is toxic to aquatic invertebrates and oysters. Do not contaminate water when disposing of equipment wash water.

Physical or Chemical Hazards

Do not place product near or allow product to come into contact with strong oxidizing substances (such as potassium permanganate) since a hazardous chemical reaction may occur.

Nonrefillable Rigid Plastic and Metal Containers (Capacity Equal to or Less Than 5 Gallons):

Storage and Disposal

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

PESTICIDE STORAGE: Do not subject to temperatures below 32 degrees F. Store product in original container only in a location inaccessible to children and pets. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Not for use or storage in or around the home.

PESTICIDE DISPOSAL: Do not contaminate water, food or feed by storage or 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. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. 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, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances. For Metal Containers, offer for recycling if available or reconditioning if appropriate or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Nonrefillable Plastic and Metal Containers (Capacity Greater Than 5 Gallons):

Storage and Disposal

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

PESTICIDE STORAGE: Do not subject to temperatures below 32 degrees F. Store product in original container only in a location inaccessible to children and pets. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Not for use or storage in or around the home.

PESTICIDE DISPOSAL: Do not contaminate water, food or feed by storage or 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. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances. For Metal Containers, offer for recycling if available or reconditioning if appropriate or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Nonrefillable Plastic and Metal Containers, e.g., Intermediate Bulk Containers [IBC] (Size or Shape Too Large to be Tipped, Rolled or Turned Upside Down):

Storage and Disposal

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

PESTICIDE STORAGE: Do not subject to temperatures below 32 degrees F. Store product in original container only in a location inaccessible to children and pets. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Not for use or storage in or around the home.

PESTICIDE DISPOSAL: Do not contaminate water, food or feed by storage or 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 the contents from this container into application equipment or mix tank and before final disposal using the following pressure rinsing procedure. Insert a lance fitted with a suitable tank cleaning nozzle into the container and ensure that the water spray thoroughly covers the top, bottom and all sides inside the container. The nozzle manufacturer generally provides instructions for the appropriate spray pressure, spray duration and/or spray volume. If the manufacturer's instructions are not available, pressure rinse the container for at least 60 seconds using a minimum pressure of 30 PSI with a minimum rinse volume of 10% of the container volume. Drain, pour or pump rinsate into application equipment or rinsate collection system. Repeat this pressure rinsing procedure two more times. Then, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. For Metal Containers, offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

All Refillable Containers:

Storage and Disposal

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

PESTICIDE STORAGE: Do not subject to temperatures below 32 degrees F. Store product in original container only in a location inaccessible to children and pets. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Not for use or storage in or around the home.

PESTICIDE DISPOSAL: Do not contaminate water, food or feed by storage or disposal. Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

CONTAINER HANDLING:

Refillable container. Refilling Container: Refill this container with Lumiderm containing cyantraniliprole only. Do not reuse this container for any other purpose. Cleaning before refilling is the responsibility of the refiller. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn out threads and closure devices. If leaks are found, do not reuse or transport container, contact Corteva Agriscience at the number below for instructions. Disposing of Container: Do not reuse this container for any other purpose other than refilling (see preceding). Cleaning the container before final disposal is the responsibility of the person disposing of the container. To clean the container before final disposal, use the following pressure rinsing procedure. Insert a lance fitted with a suitable tank cleaning nozzle into the container and ensure that the water spray thoroughly covers the top, bottom and all sides inside the container. The nozzle manufacturer generally provides instructions for the appropriate spray pressure, spray duration and/or spray volume. If the manufacturer's instructions are not available, pressure rinse the container for at least 60 seconds using a minimum pressure of 30 PSI with a minimum rinse volume of 10% of the container volume. Drain, pour or pump rinsate into application equipment or rinsate collection system. Repeat this pressure rinsing procedure two more times. Then, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances. For Metal Containers, offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Do not transport if container is damaged or leaking. If the container is damaged, leaking, or obsolete, or in the event of a major spill, fire, or other emergency, contact Corteva Agriscience at 1-800-992-5994, day or night.

Refer to inside of label booklet for additional precautionary information including First Aid and Directions for Use.

Notice: Read the entire label. Use only according to label directions. **Before using this product, read Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies at end of label booklet. If terms are unacceptable, return at once unopened.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994.

Agricultural Chemical: Do not ship or store with food, feeds, drugs, or clothing.

EPA Reg. No. 352-858

EPA Est. _____

[CD02-xxx-xxx]

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**Produced for
Corteva Agriscience LLC
9330 Zionsville Road
Indianapolis, IN 46268**

NET CONTENTS _____

(Booklet cover)

CYANTRANILIPROLE	GROUP	28	INSECTICIDE
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Lumiderm®

INSECTICIDE SEED TREATMENT

[Alternate Brand Name: Lumiderm]

[Alternate Brand Name: Lumiposa]

For seed treatment applications to rapeseed/canola, mustard, and soybean seed for pest management of sucking and chewing insects.

Active Ingredient

Cyantraniliprole 3-bromo-1-(3-chloro-2-pyridinyl)-N-[4-cyano-2-methyl-6-[(methylamino) carbonyl]phenyl]-1H-pyrazole-5-carboxamide.....	50%
Other Ingredients	50%
TOTAL	100%

Lumiderm is a flowable suspension.
Contains 5.21 lb. active ingredient per gallon.

Keep Out of Reach of Children

CAUTION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

Refer to inside of label booklet for additional precautionary information including First Aid and Directions for Use.

Notice: Read the entire label. Use only according to label directions. **Before using this product, read Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies at end of label booklet. If terms are unacceptable, return at once unopened.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994.

Agricultural Chemical: Do not ship or store with food, feeds, drugs, or clothing.

EPA Reg. No. 352-858

EPA Est. _____

[CD02-xxx-xxx]

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**Produced for
Corteva Agriscience LLC
9330 Zionsville Road
Indianapolis, IN 46268**

NET CONTENTS _____

(Booklet page 1 through end)

Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION

Personal Protective Equipment

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants.
- Shoes plus socks.
- Chemical resistant gloves made of any waterproof material (Category A such as natural rubber > 14 mils).

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

User Safety Recommendations

USERS SHOULD:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside.
- Then wash thoroughly and put on clean clothing.

First Aid

For questions regarding emergency medical treatment, you may contact **1-800-992-5994** for information.

Environmental Hazards

This pesticide is toxic to aquatic invertebrates and oysters. Do not contaminate water when disposing of equipment wash water.

Physical or Chemical Hazards

Do not place product near or allow product to come into contact with strong oxidizing substances (such as potassium permanganate) since a hazardous chemical reaction may occur.

Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

- Use this product only as a commercial seed treatment in rapeseed/canola, mustard, or soybean seed.
- Treated seed must not be used for or mixed with food or animal feed, or processed for oil.

When applied according to this label, Lumiderm insecticide seed treatment will provide control of cutworms and flea beetles on rapeseed/canola and mustard. When applied according to this label, Lumiderm will reduce seed and root feeding damage caused by seed corn maggot, white grub, and wireworms, reduce leaf feeding damage caused by bean leaf beetle, cutworms, soybean aphids, and leaf feeding thrips and will suppress the spread of certain viruses on soybeans. Consult your local Corteva Agriscience representative or agricultural advisor for guidance on predicted pest pressure based on historical field data for these pests in your area.

Early season improvement of plant health, vigor and stand optimizing crop potential can be experienced under all levels of insect pressure.

Lumiderm must be used in accordance with the directions for use on this label, or as otherwise permitted by FIFRA. Always read the entire label, including the Limitation of Warranty and Liability.

Lumiderm may be applied to rapeseed/canola, mustard, or soybean seed. Rapeseed/canola and mustard seed are typically planted at a soil depth of 1/2 to 1 inch. Soybean seeds are typically planted at a minimum soil depth of 1 to 1-1/2 inches.

Treating significantly damaged seed or seed that is low in vigor or overall poor quality may result in reduced germination, seedling vigor and plant stand. Before treating an entire seed lot with the proposed seed treatment, treat a small portion of the seed lot and conduct subsequent germination tests. Corteva Agriscience makes no guarantee regarding the germination of damaged or carryover treated seed, since seed quality and storage conditions are beyond the control of Corteva Agriscience.

Corteva Agriscience will not be responsible for losses or damages resulting from the use of this product in any manner not specifically stated on this label. User assumes all risks associated with such non-recommended use.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Do not subject to temperatures below 32 degrees F. Store product in original container only in a location inaccessible to children and pets. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Not for use or storage in or around the home.

PESTICIDE DISPOSAL: Do not contaminate water, food or feed by storage or 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 Rigid Plastic and Metal Containers (Capacity Equal to or Less Than 5 Gallons):

Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. 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, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances. For Metal Containers, offer for recycling if available or reconditioning if appropriate or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Nonrefillable Plastic and Metal Containers (Capacity Greater Than 5 Gallons): Nonrefillable container.

Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances. For Metal Containers, offer for recycling if available or reconditioning if appropriate or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Nonrefillable Plastic and Metal Containers, e.g., Intermediate Bulk Containers [IBC] (Size or Shape Too Large to be Tipped, Rolled or Turned Upside Down): Nonrefillable container. Do not reuse or refill this container.

Clean container promptly after emptying the contents from this container into application equipment or mix tank and before final disposal using the following pressure rinsing procedure. Insert a lance fitted with a suitable tank cleaning nozzle into the container and ensure that the water spray thoroughly covers the top, bottom and all sides inside the container. The nozzle manufacturer generally provides instructions for the appropriate spray pressure, spray duration and/or spray volume. If the manufacturer's instructions are not available, pressure rinse the container for at least 60 seconds using a minimum pressure of 30 PSI with a minimum rinse volume of 10% of the container volume. Drain, pour or pump rinsate into application equipment or rinsate collection system. Repeat this pressure rinsing procedure

two more times. Then, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. For Metal Containers, offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

All Refillable Containers: Refillable container. Refilling Container: Refill this container with Lumiderm containing cyantraniliprole only. Do not reuse this container for any other purpose. Cleaning before refilling is the responsibility of the refiller. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn out threads and closure devices. If leaks are found, do not reuse or transport container, contact Corteva Agriscience at the number below for instructions. Disposing of Container: Do not reuse this container for any other purpose other than refilling (see preceding). Cleaning the container before final disposal is the responsibility of the person disposing of the container. To clean the container before final disposal, use the following pressure rinsing procedure. Insert a lance fitted with a suitable tank cleaning nozzle into the container and ensure that the water spray thoroughly covers the top, bottom and all sides inside the container. The nozzle manufacturer generally provides instructions for the appropriate spray pressure, spray duration and/or spray volume. If the manufacturer's instructions are not available, pressure rinse the container for at least 60 seconds using a minimum pressure of 30 PSI with a minimum rinse volume of 10% of the container volume. Drain, pour or pump rinsate into application equipment or rinsate collection system. Repeat this pressure rinsing procedure two more times. Then, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances. For Metal Containers, offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Do not transport if container is damaged or leaking. If the container is damaged, leaking, or obsolete, or in the event of a major spill, fire, or other emergency, contact Corteva Agriscience at 1-800-992-5994, day or night.

Integrated Pest Management

Corteva Agriscience supports the use of Integrated Pest Management (IPM) programs to control pests. This product may be used as part of an IPM program, which can include biological, cultural, and genetic practices, aimed at preventing economic pest damage. IPM principles and practices include field scouting or other detection methods, correct target pest identification, population monitoring, rotation of insecticides with different modes-of-action, and treating when target pest populations reach locally determined action thresholds. Consult your state cooperative extension service, professional consultants, or other qualified authorities to determine appropriate action treatment threshold levels for treating specific pest/crop or site systems in your area.

Insect Resistance Management

Lumiderm contains the active ingredient cyantraniliprole and is a Group 28 insecticide based on the mode of action classification system of the International Insecticide Resistance Action Committee (IRAC). Insecticides with the same Group Number affect the same biological site of action on the target pest and when used repeatedly in the same treatment area, naturally occurring resistant individuals may survive correctly applied insecticide treatments, reproduce, and become dominant.

To avoid or delay the development of insecticide resistance, a resistance management strategy should be established for the use area. This strategy may include incorporation of cultural and biological control practices, alternation to different mode-of-action insecticides on succeeding generations, and targeting the most susceptible life stage. Consult your local or state agricultural authorities and product manufacturer for more information about developing a resistance management strategy.

Unless directed otherwise in the specific crop/pest sections of this label, the best practices are to follow these guidelines to delay the development of insecticide resistance:

- Apply Lumiderm and other Group 28 insecticides within a single “treatment window” to minimize exposing multiple successive generations of a pest species to the same mode of action insecticides.
- A “treatment window” is defined as the period of insecticidal activity provided by one or more applications of products with the same mode of action.
- A “treatment window”, including residual control, should not exceed 30 days (the length of a typical pest generation).
- Within the Group 28 “treatment window”, make no more than 2 applications of a Group 28 insecticide.
- Following a Group 28 “treatment window”, rotate to a “treatment window” of effective insecticides with a different mode of action (Group Number).
- The period between Group 28 “treatment windows” should be at least 30 days.
- The total exposure of all Group 28 products applied throughout the crop cycle (from seedling to harvest) should not exceed approximately 50% of the crop cycle or 50% of the total number of insecticide applications targeted at the same pest species.
- For short cycle crops (< 50 days), the duration of the crop cycle may be considered as the Group 28 “treatment window” as long as no Group 28 insecticides are used during the next crop cycle at the same farm location.
- Avoid using less than labeled rates of Lumiderm when applied alone or in tank mixtures.
- Target the most susceptible insect life stages whenever possible.
- Monitor insect populations for product effectiveness. If poor performance occurs and it cannot be attributed to improper application or extreme weather conditions, a resistant pest population may be present. If resistance to Lumiderm develops in your area, Lumiderm or other products with a similar mode of action (Group 28) may not provide adequate control. If you experience difficulty with control and resistance is a reasonable cause, immediately consult your local company representative or agricultural advisor for the best alternate method of control for your area.

If Lumiderm or any other Group 28 insecticide was used, do not apply other Group 28 insecticides for control of the same pest (see crop tables for labeled pests) for at least 60 days after emergence. If replant is required and no other Group 28 insecticides were used within the treatment window, then replanting rapeseed/canola, mustard or soybean seed treated with Lumiderm is allowed. Application(s) for control of the same pest during the first 30-60 days must be with an effective product with a different mode of action (i.e., a product with a different IRAC Group Number) for at least a 30 day “treatment window” before making any applications of a Group 28 insecticide.

For additional information on insect resistance monitoring, visit the Insecticide Resistance Action Committee (IRAC) on the web at <http://www.irc-online.org>.

Length of control:

The length of control provided by Lumiderm will depend on the rate used, the pest being controlled, and the environmental conditions such as soil type, soil moisture, soil pH, etc. Use the higher rates when high pest pressure is expected to occur, when the pest is expected to occur later in the crop stage or when pests are expected to be present continuously. Lumiderm will primarily have activity in the foliage of treated plants and will not provide protection within the blooms and fruit. Foliar applications of other products may be needed to protect these parts of the plant.

Application

Compatibility - Lumiderm may be applied as a water-based slurry with other registered seed treatment fungicides and insecticides in accordance with the most restrictive of label limitations and precautions. Do not exceed labeled dosage rates. This product cannot be mixed with any product containing a label prohibition against such mixing. Potential mixing partners should be tested for physical compatibility with Lumiderm and added dyes or polymers before mixing in a large tank for seed treatment.

The crop safety of all possible mixtures with Lumiderm has not been tested. When considering the use of a mixture without prior experience, or which is not specifically described on Lumiderm product labeling or in other Corteva Agriscience product use instruction, it is important to first understand crop safety. Before treating an entire seed lot with the proposed seed treatment mixture, treat a small portion of the seed lot and conduct subsequent germination tests.

Corteva Agriscience will not be responsible for any crop injury arising from the use of a mixture that is not specifically described on Lumiderm product labeling or in other Corteva Agriscience product use instruction.

Use Rate

Use Lumiderm as directed to listed crop seeds in the following Use-Rate Tables for control of listed insects. Consult your Corteva Agriscience representative for further guidance.

Lumiderm Insecticide Seed Treatment Use-Rate Tables

Seed Crops	Pest*	fl oz Lumiderm/ 100 lb of seed	lb active ingredient/ 100 lb of seed	mL Lumiderm/ 100 kg of seed
Rapeseed including canola varieties, Mustard Seed	Flea Beetles	14.8 - 24.6	0.6 - 1.0	960 - 1600
	Cutworms	3.7 - 24.6	0.15 - 1.0	240 -1600

* Use the higher rates in areas that are predicted to have high pest pressure, in areas with high populations of striped flea beetle, or where extended early season control is required.

Seed Crop	Pest**	mg active ingredient/ seed	fl oz Lumiderm/ 100 lb of seed	lb active ingredient/ 100 lb of seed	fl oz Lumiderm/ 140k seed unit	mL Lumiderm/ 100 kg of seed
Soybean ⁺	Bean leaf beetle, Cutworms, Leaf feeding thrips, Seed corn maggot, Soybean aphid, White grub, Wireworms	0.075 to 0.15	1.14 to 2.28	0.046 to 0.092	0.57 to 1.14	74 to 148

⁺ Not registered for use in the State of California.

** Use the higher rates in areas that are predicted to have high pest pressure.

Lumiderm Soybean Seed Treatment Rate Table - Grower Guide

Treatment Rate Per Soybean Seed	Soybean Seeding Per Acre	Lb AI (Cyantraniliprole) Rate Per Acre
0.075 mg ai /seed	150,000 seeds	0.025
	200,000 seeds	0.033
	225,000 seeds	0.037
0.15 mg ai /seed	150,000 seeds	0.05
	200,000 seeds	0.066
	225,000 seeds	0.074

Restriction: Do not apply a total of more than 0.4 lb ai/A of cyantraniliprole-containing products per calendar year — this is the total cyantraniliprole applied by seed treatment, soil application, and foliar application.

Mixing Guidance

For use in commercial seed treaters only, operating standard, calibrated seed treatment equipment. Not for use in hopper box, planter box, slurry box, or other farmer applied applications. Treatment equipment must be clean and free of previous pesticide deposits before applying Lumiderm. Thoroughly mix recommended amount of Lumiderm with the required amount of water.

Add an EPA approved dye or colorant to treat the seeds per 40 CFR 153.155(b)(1) during the seed treatment process. Ensure that all treated seed are dyed an unnatural color.

Mixing Tank Cleanout

Prior to application, start with clean, well maintained application equipment. Immediately following application, thoroughly clean all mixing equipment to reduce the risk of forming hardened deposits, which might become difficult to remove.

Drain mixing equipment. Thoroughly rinse mixing equipment and flush with clean water.

Clean all other associated application equipment. Take all necessary safety precautions when cleaning equipment. Do not clean near wells, water sources or desirable vegetation. Dispose of waste rinse water in accordance with local regulations.

Crop Rotation

- Rapeseed/canola, mustard, or soybean seed treated with Lumiderm may be replanted immediately if needed due to crop failure.
- Crops on this label and the following crops or crop groups may be planted immediately following the last application of a cyantraniliprole containing product: Brassica Leafy Greens (Crop Subgroup 4-16B) and Brassica Head and Stem Vegetables (Crop Group 5-16); Bulb Vegetables (Crop Group 3-07); Cotton; Cucurbit Vegetables (Crop Group 9); Fruiting Vegetables (Crop Group 8-10); Leafy Greens (Crop Subgroup 4-16A) and Leaf Petiole Vegetables (Crop Subgroup 22B); Celtuce; Florence Fennel; Leaves of Root and Tuber Vegetables (Crop Group 2); Legume Vegetables (Crop Groups 6 and 7); Low Growing Berries (Berry and Fruit Crop Subgroup 13-07H); Oilseeds (Crop Group 20); Peanuts; Soybeans; Root and Tuber Vegetables (Crop Subgroups 1B and 1C); Tobacco.
- The following crops or crop groups may be planted 30 days following the last application of a cyantraniliprole containing product: Cereal Grains (Crop Group 15); Forage, Fodder and Straw of Cereal Grains (Crop Group 16); Grass Forage, Fodder and Hay (Crop Group 17); Nongrass Animal Feeds (forage, fodder, straw and hay) (Crop Group 18); Sugar beets.
- There is no plant back restriction for conversion of a treated field to, or for making a new or replacement planting into established orchards or fields of Bushberries (Crop Subgroup 13-07B); Caneberry Subgroup (Crop Subgroup 13-07A); Coffee; Citrus (Crop Group 10-10); Pome Fruits (Crop Group 11-10); Stone Fruits (Crop Group 12); Low Growing Berries (Crop Subgroup 13-07G); or Tree Nuts (Crop Group 14-12).
- All other crops cannot be planted until 12 months after the last application of a cyantraniliprole containing product.

Commercial Seed Bag Labeling

The Federal Seed Act requires that bags containing treated seeds shall be labeled with the following statements:

- Treated Seed. Do not use for food, feed, or oil purposes.
- This seed has been treated with Lumiderm insecticide seed treatment (cyantraniliprole).

In addition, the U.S. Environmental Protection Agency requires the following statements on bags containing seeds treated with Lumiderm (cyantraniliprole):

- Store away from food or feed.
- Do not allow children, pets, or livestock to have access to treated seed.
- Wear long-sleeved shirt, long pants and chemical-resistant gloves when handling treated seed.
- Use of Lumiderm as a seed treatment must be communicated to all personnel involved in seasonal insect control recommendations.
- This product is highly toxic to bees. Ensure that the planting equipment is functioning properly in accordance with manufacturer specifications to minimize seed coat abrasion during planting to reduce dust which can drift to blooming crops and weeds.
- Rapeseed/canola and mustard seed are typically planted at a soil depth of 1/2 to 1 inch and soybean seed at a minimum depth of 1 to 1-1/2 inches.
- Treated seed exposed on soil surface may be hazardous to wildlife. Immediately cover or collect seeds spilled during loading. Do not allow treated seed to remain uncovered on the soil surface.
- Dispose of all excess treated seed by burying seed away from bodies of water. Leftover treated seed may be double sown around the headland or buried away from water sources in accordance with local requirements.
- Excess treated seed may be used for ethanol production only if (a) ethanol production by-products are not used for livestock feed and, (2) no measurable residues of pesticides remain in the ethanol by-products that are used in agronomic practice.
- Dispose of seed packaging in accordance with local requirements.
- Canola seed has been treated with maximum of 1.0 lb cyantraniliprole per 100 lb seed. Therefore, each 1 lb cyantraniliprole treated canola seed planted per acre results in an application of 0.01 lb cyantraniliprole/acre.
- Do not apply a total of more than 0.4 lb ai/A of cyantraniliprole containing products per calendar year — this is the total cyantraniliprole applied by seed treatment, soil application, and foliar application.
- Including the Lumiderm seed treatment, make no more than two applications of cyantraniliprole or other Group 28 products per generation to the same insect species on a crop or within a 30 day period (count planting date as day 1 if using treated seed). Application(s) to the next generation of target pest(s) must be with an effective product with a different mode of action (non-Group 28 insecticide).

Crop Rotation

- Rapeseed/canola, mustard, or soybean seed treated with Lumiderm may be replanted immediately if needed due to crop failure.
- Crops on this label and the following crops or crop groups may be planted immediately following the last application of a cyantraniliprole containing product: Brassica Leafy Greens (Crop Subgroup 4-16B) and Brassica Head and Stem Vegetables (Crop Group 5-16); Bulb Vegetables (Crop Group 3-07); Cotton; Cucurbit Vegetables (Crop Group 9); Fruiting Vegetables (Crop Group 8-10); Leafy Greens (Crop Subgroup 4-16A) and Leaf Petiole Vegetables (Crop Subgroup 22B); Celtnuce; Florence Fennel; Leaves of Root and Tuber Vegetables (Crop Group 2); Legume Vegetables (Crop Groups 6 and 7); Low Growing Berries (Berry and Fruit Crop Subgroup 13-07H); Oilseeds (Crop Group 20); Peanuts; Soybeans; Root and Tuber Vegetables (Crop Subgroups 1B and 1C); Tobacco.
- The following crops or crop groups may be planted 30 days following the last application of a cyantraniliprole containing product: Cereal Grains (Crop Group 15); Forage, Fodder and Straw of Cereal Grains (Crop Group 16); Grass Forage, Fodder and Hay (Crop Group 17); Nongrass Animal Feeds (forage, fodder, straw and hay) (Crop Group 18); Sugar beets.
- There is no plant back restriction for conversion of a treated field to, or for making a new or replacement planting into established orchards or fields of Bushberries (Crop Subgroup 13-07B);

Caneberry Subgroup (Crop Subgroup 13-07A); Coffee; Citrus (Crop Group 10-10); Pome Fruits (Crop Group 11-10); Stone Fruits (Crop Group 12); Low Growing Berries (Crop Subgroup 13-07G); or Tree Nuts (Crop Group 14-12).

- All other crops cannot be planted until 12 months after the last application of a cyantraniliprole-containing product.

NOTICE TO BUYER— Purchase of this material does not confer any rights under patents of countries outside of the United States.

Terms and Conditions of Use

If terms of the following Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies are not acceptable, return unopened package at once to the seller for a full refund of purchase price paid. To the extent permitted by law, use by the buyer or any other user constitutes acceptance of the terms under Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies.

Warranty Disclaimer

Corteva Agriscience warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. To the extent permitted by law, Corteva Agriscience MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Corteva Agriscience or the seller. Corteva Agriscience will not be responsible for losses or damages resulting from the use of this product in any manner not specifically directed by Corteva Agriscience. To the extent permitted by law, all such risks associated with non-directed use shall be assumed by buyer and/or user.

Limitation of Remedies

To the extent permitted by law, the exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, tort, strict liability, or other legal theories), shall be limited to, at Corteva Agriscience's election, one of the following:

1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of amount of product used.

To the extent permitted by law, Corteva Agriscience shall not be liable for losses or damages resulting from handling or use of this product unless Corteva Agriscience is promptly notified of such loss or damage in writing. To the extent permitted by law, in no case shall Corteva Agriscience be liable for consequential, incidental or special damages or losses.

The terms of the Warranty Disclaimer, Inherent Risks of Use and this Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Corteva Agriscience or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

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