



John Elias Baldacci
GOVERNOR

STATE OF MAINE
MAINE DEPARTMENT OF AGRICULTURE, FOOD & RURAL RESOURCES
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0028

SETH H. BRADSTREET III
COMMISSIONER
HENRY JENNINGS
DIRECTOR

To: Board of Pesticides Control Members
From: Mary Tomlinson, Pesticides Registrar
RE: EPA SLN NO. ME-100001, to approve the use of Bravo ZN (EPA Reg. No. 50534-204-100) on Long Season Potatoes
Date: April 7, 2010

Enclosed are the above referenced SLN application and supplemental product label for your consideration. The Special Local Needs (24c) application for use of Bravo ZN (EPA Reg. No. 50534-204-100) limits use to long-season potatoes during epidemics of severe late blight (*Phytophthora infestans*). The request is in response to the unfavorable growing conditions experienced in 2009 when many growers exhausted chlorothalonil limits and were unable to obtain EDBC materials. Increasing allowable chlorothalonil rates will permit growers the flexibility to respond more effectively to such unique growing conditions.

Your package includes the additional following documents for your review.

- State product label and MSDS
- Letter of request for 24(c) Steve Johnson to Syngenta Crop Protection, Dec. 3, 2009
- Letter of support from Steve Johnson, University of Maine Cooperative Extension, Dec.3, 2009
- Letter from Larry Zang, Syngenta Crop Protection, Dec. 15, 2009
- Memo from Lebelles Hicks, April 7, 2010
- E-mails Jennings-Kish-Zang 2010 page 1
- Amended Labeling - Inhalation Study 2009
- EPA Memorandum 1996 Re: Base Labeling Review & Dietary Risk 1996

Please review these materials and let me know if you have any questions.



Section 24(c) Special Local Need Label

FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF MAINE.

Bravo® Zn

EPA Reg. No. 50534-204

EPA SLN No. ME-xxxx

For Control of Late Blight (*Phytophthora infestans*) for Long-Season Potatoes

KEEP OUT OF REACH OF CHILDREN WARNING/AVISO

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

DIRECTIONS FOR USE

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

Follow all applicable directions, restrictions, Worker Protection Standard requirements, and precautions on the EPA-registered label. This label must be in the possession of the user at the time of pesticide application.

CROP	DISEASES (Pathogen)	Pts. Product./A (lbs. a.i./A)	APPLICATION DIRECTIONS
Potato (Long-season varieties)	Late Blight (<i>Phytophthora infestans</i>)	1½ to 2 1/8 (0.75 to 1.125)	<p>Begin applying at 5 to 10 day intervals when Late Blight forecasting measures 18 disease severity values (DSV).</p> <p>Increase water spray volume as canopy density increases. Use the highest rate and shortest interval when plants are rapidly growing and disease conditions are severe.</p> <p>Bravo Zn may be applied through sprinkler irrigation equipment (solid set, portable wheel move, motorized lateral move or center pivot systems only).</p> <p>Do not exceed a 10 day interval between applications when using chemigation. See <i>Application and Calibration Techniques for Chemigation</i> on Bravo Zn label.</p>

Specific Use Restrictions: Do not apply more than 30½ pts. Bravo Zn (16 lbs. a.i.) per acre on long-season varieties of potato during each growing season. Do not apply within 7 days of harvest.

Bravo® is a trademark of a Syngenta Group Company
24(c) Registrant:
GB Biosciences

Greensboro, NC

PULL HERE TO OPEN ►



Bravo[®] ZN

Agricultural Fungicide

<i>Active Ingredient:</i>	
Chlorothalonil (tetrachloroisophthalonitrile)	38.5%
<i>Other Ingredients:</i>	61.5%
<i>Total:</i>	100.0%

Contains 4.17 pounds chlorothalonil per gallon (500 grams per liter)

KEEP OUT OF REACH OF CHILDREN. WARNING/AVISO

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

See additional precautionary statements and directions for use inside booklet.

**Covered under U.S. Pat. No. 5,667,795*

EPA Reg. No. 50534-204

*EPA Est. 50534-TX-001^{GBY}, EPA Est. 070989-AR-001^{OMB}
(Superscript is first three letters of batch code on container)*

SCP 50534-204A-M1D 0408

2.5 gallons
Net Contents

**GB BIOSCIENCES[™]
CORPORATION**

Bravo® Zn

FIRST AID	
If inhaled	<ul style="list-style-type: none">• Move person to fresh air.• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.• Call a poison control center or doctor for further treatment advice.
If swallowed	<ul style="list-style-type: none">• 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.
If on skin or clothing	<ul style="list-style-type: none">• 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 in eyes	<ul style="list-style-type: none">• 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.
Note to Physician Persons suffering with temporary allergic skin reactions may respond to treatment with oral antihistamines and topical or oral steroids.	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
HOT LINE NUMBER For 24 Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire, or Accident), Call 1-800-888-8372	

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

WARNING/AVISO

May be fatal if inhaled. Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Do not breathe spray mist. Avoid contact with skin, eyes, or clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are made of any waterproof material. If you want more options, follow the instructions for Category A on an EPA chemical resistance category selection chart.

Mixers, Loaders, Applicators and all other handlers must wear:

- long-sleeved shirt and long pants
- chemical resistant gloves made of any waterproof material
- shoes plus socks
- NIOSH approved dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C) or a NIOSH approved respirator with any N, R, P or HE filter.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Control Statements

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Bravo® Zn

Environmental Hazards

This product is toxic to aquatic invertebrates and wildlife. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment wash waters or rinsate.

This chemical is known to leach through soil into groundwater under certain conditions as a result of label use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

This chemical can contaminate surface water through spray drift. Under some conditions, it may also have a high potential for runoff into surface water for several days to weeks after application. These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas overlaying extremely shallow ground water, areas with infield canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas over-laying tile drainage systems that drain to surface water.

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of GB BIOSCIENCES CORPORATION or Seller. To the extent permitted by applicable law, Buyer and User agree to hold GB BIOSCIENCES and Seller harmless for any claims relating to such factors.

GB BIOSCIENCES warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. To the extent permitted by applicable law: (1) this warranty does not extend to the use of the product contrary to label instructions or under conditions not reasonably foreseeable to or beyond the control of Seller or GB BIOSCIENCES, and, (2) Buyer and User assume the risk of any such use. **TO THE EXTENT PERMITTED BY APPLICABLE LAW, GB BIOSCIENCES MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS WARRANTED BY THIS LABEL.**

To the extent permitted by applicable law, in no event shall GB BIOSCIENCES be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF GB BIOSCIENCES AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF GB BIOSCIENCES OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

GB BIOSCIENCES and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of GB BIOSCIENCES.

DIRECTIONS FOR USE

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

Bravo Zn should be used only in accordance with recommendations on this label or in separately published GB BIOSCIENCES supplemental labeling recommendations for this product.

Do not apply this product in a way that will contact workers, other persons or pets, 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 agency responsible for pesticide regulation.

Bravo® Zn

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. 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 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
- chemical resistant gloves made of any waterproof material
- shoes plus socks
- protective eyewear

Special Eye Irritation Provisions: This product is a severe eye irritant. Although the restricted-entry interval expires after 12 hours, for the next 6.5 days entry is permitted only when the following safety measures are provided:

- (1) At least one container designed specifically for flushing eyes must be available in operating condition at the WPS-required decontamination site intended for workers entering the treated area.
- (2) Workers must be informed, in a manner they can understand:
 - that residues in the treated area may be highly irritating to their eyes
 - that they should take precautions, such as refraining from rubbing their eyes to keep the residues out of their eyes
 - that if they do get residues in their eyes, they should immediately flush their eyes using the eyeflush container that is located at the decontamination site, or using other readily available clean water
 - how to operate the eyeflush container

GENERAL INFORMATION

Bravo Zn is an excellent disease control agent when used according to label directions for control of a broad spectrum of plant diseases.

Bravo Zn is recommended for use in programs which are compatible with the principles of Integrated Pest Management (IPM), which include the use of disease resistant crop varieties, cultural practices, pest scouting and disease forecasting systems which reduce unnecessary applications of pesticides.

Bravo Zn is effective for strategic use in programs that attempt to minimize disease resistance to fungicides. Some other fungicides which are at risk from disease resistance exhibit a single-site model of fungicidal action. Bravo Zn, with a multi-site mode of action, may be used to delay or prevent the development of resistance to single-site fungicides. Consult with your Federal or State Cooperative Extension Service representatives for guidance on the proper use of Bravo Zn in programs which seek to minimize the occurrence of disease resistance to other fungicides.

Bravo Zn can be used effectively in dilute or concentrate sprays. Thorough, uniform coverage is essential for disease control.

General Precautions and Restrictions

Do not use on greenhouse-grown crops.

This product must not be applied within 150 feet for aerial applications or 25 feet for ground applications of marine/estuarine water bodies, unless there is an untreated buffer area of that width between the area to be treated and the water body.

Do not combine Bravo Zn in the spray tank with pesticides, surfactants or fertilizers, unless your prior use has shown the combination physically compatible, effective and noninjurious under your conditions of use. Do not combine Bravo Zn with Dipel®, Latron B-1956® or Latron AG-98® as phytotoxicity may result from the combination when applied to some crops on this label.

Spray Drift Precautions

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

Bravo® Zn

The following drift management requirements must be followed to avoid off target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or applications using dry formulations.

1. The distance of the outer most nozzles on the boom must not exceed $\frac{3}{4}$ 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 should be observed.

The applicator should be familiar with and take into account the information covered in the **Aerial Drift Reduction Advisory Information**.

Aerial Drift Reduction Advisory Information

[This section is advisory in nature and does not supercede the mandatory label requirements.]

Information on Droplet Size

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

Controlling Droplet Size

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

Boom Length

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

Application Height

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

Swath Adjustment

When applications are made with a crosswind, the swath will be displaced 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 should increase with increasing drift potential (higher wind, smaller drops, etc.).

Wind

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

Temperature and Humidity

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

Temperature Inversions

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

Bravo® Zn

Sensitive Areas

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

APPLICATION

Note: Slowly invert container several times to assure uniform mixture.

Dosage rates on this label indicate pints of Bravo Zn per acre, unless otherwise stated. Under conditions favoring disease development, the high rate specified and shortest application interval should be used.

The required amount of Bravo Zn should be added slowly into the spray tank during filling. With concentrate sprays, premix the required amount of Bravo Zn in a clean container and add to the spray tank as it is being filled. Keep agitator running when filling spray tank and during spray operations.

Apply Bravo Zn in sufficient water to obtain adequate coverage of foliage. Gallonage to be used will vary with crop and amount of plant growth.

For field and row crops, spray volume usually will range from 20 to 150 gallons per acre for dilute sprays and 5 to 10 gallons per acre for concentrate ground sprays and aircraft applications.

For tree and orchard crops, apply Bravo Zn in sufficient water and with proper calibration to obtain uniform coverage of tree canopy. For fruit and nut bearing crops, the maximum volume is 300 gallons per acre unless indicated otherwise in the specific use directions.

Application and Calibration Techniques for Sprinkler Irrigation - Chemigation

Apply this product only through center pivot, motorized lateral move, traveling gun, solid set and portable (wheel move, side roll, end tow, or hand move) irrigation system(s). 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 apply this product through irrigation systems connected to a public water system. "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 per year.

Controls for both irrigation water and pesticide injection systems must be functionally interlocked, so as to automatically terminate pesticide injection when the irrigation water pump motor stops. A person knowledgeable of the irrigation system and responsible for its operation shall be present so as to discontinue pesticide injection and make necessary adjustments, should the need arise.

The irrigation water pipeline must be fitted with a functional, automatic, quick-closing check valve to prevent the flow of treated irrigation water back toward the water source. The pipeline must also be fitted with a vacuum relief valve and low pressure drain, located between the irrigation water pump and the check valve, to prevent back-siphoning of treated irrigation water into the water source.

Always inject Bravo Zn into irrigation water after it discharges from the irrigation pump and after it passes through the check valve. Never inject pesticides into the intake line on the suction side of the pump.

Pesticide injection equipment must be fitted with a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump. Interlock this valve to the power system, so as to prevent fluid from being withdrawn from the chemical supply tank when the irrigation system is either automatically or manually turned off.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Spray mixture in the chemical supply tank must be agitated at all times, otherwise settling and uneven application may occur. Do not apply when wind speed favors drift beyond the area intended for treatment.

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.

Bravo Zn may be used through two basic types of sprinkler irrigation systems as outlined in Sections A and B below. Determine which type of system is in place, then refer to the appropriate directions provided for each type.

Bravo® Zn

A. Center Pivot, Motorized Lateral Move and Traveling Gun Irrigation Equipment

For injection of pesticides, these continuously moving systems must use a positive displacement injection pump, of either diaphragm or piston type, constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock and capable of injection at pressures approximately 2-3 times those encountered within the irrigation water line. Venturi applicator units cannot be used on these systems.

Thoroughly mix recommended amount of Bravo Zn for acreage to be covered into same amount of water used during calibration and inject into system continuously for one revolution or run. Mixture in the chemical supply tank must be continuously agitated during the injection run. Shut off injection equipment after one revolution or run, but continue to operate irrigation system until Bravo Zn has been cleared from last sprinkler head.

B. Solid Set and Portable (Wheel Move, Side Roll, End Tow, or Hand Move) Irrigation Equipment

With stationary systems, an effectively designed in-line venturi applicator unit is preferred which is constructed of materials that are compatible with pesticides; however, a positive-displacement pump can also be used.

Determine acreage covered by sprinkler. Fill tank of injection equipment with water and adjust flow to use contents over a thirty to forty-five minute period. Mix desired amount of Bravo Zn for acreage to be covered with water so that the total mixture of Bravo Zn plus water in the injection tank is equal to the quantity of water used during calibration and operate entire system at normal pressures recommended by the manufacturer of injection equipment used for amount of time established during calibration. Agitation is recommended. Bravo Zn can be injected at the beginning or end of the irrigation cycle or as a separate application. Stop injection equipment after treatment is completed and continue to operate irrigation system until Bravo Zn has been cleared from last sprinkler head.

DIRECTIONS FOR APPLICATION

CROP	DISEASES (Pathogen)	PTS. PRODUCT/A (lbs. a.i./A)	APPLICATION DIRECTIONS
Bean (Snap)	Rust (<i>Uromyces appendiculatus</i>)	2 to 4 ¹ / ₄ (1.0 to 2.25)	Use in sufficient water to obtain adequate coverage. Begin applications during early bloom stage or when disease first threatens and repeat as necessary (the minimum retreatment interval is 7 days) to maintain control.
	Botrytis blight (gray mold) (<i>B. cinerea</i>)	4 ¹ / ₄ (2.25)	
			Apply by ground, air or chemigation.

Specific Use Restrictions:

- Do not apply more than 17 pints of Bravo Zn (9.0 lbs. a.i.) per acre during each growing season.
- Do not apply within 7 days of harvest.

Beans (Dry) (except soybeans) bean, adzuki bean, broad bean, dry bean, lablab bean, navy bean, kidney bean, lima bean, moth bean, mung bean, pink bean, pinto bean, tepary bean, urd bean, yardlong catjang chickpea (garbanzo) cowpea lupin, grain lupin bean, rice bean, runner bean, jackbean pea, blackeyed pea, southern	Anthracnose (<i>Colletotrichum lindemuthianum</i>) Ascochyta blight (<i>A. phaseolorum</i>) Cercospora leaf blotch (<i>C. cruenta</i>) Downy mildew (<i>Phytophthora nicotianae</i>) Rust (<i>Uromyces appendiculatus</i>)	2 to 2 ³ / ₄ (1.0 to 1.5)	Use in sufficient water to obtain adequate coverage. Begin applications at first onset of disease, which may occur as early as 2 to 4 weeks before flowering. Repeat applications at 7 to 10-day intervals (the minimum retreatment interval is 7 days). For use only on beans to be harvested dry with pods removed. Apply by ground, air or chemigation.
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Specific Use Restrictions:

- Do not apply more than 11.5 pints of Bravo Zn (6 lbs. a.i.) per acre during each growing season.
- Do not apply within 14 days before harvest.

Bravo® Zn

CROP	DISEASES (Pathogen)	PTS. PRODUCT/A (lbs. a.i./A)	APPLICATION DIRECTIONS
Blueberries	Suppression: Anthracnose (ripe rot) <i>(C. gloeosporoides)</i> Mummy berry <i>(M. vaccinicorymbosi)</i>	4 ¹ / ₄ to 5 ³ / ₄ (2.25 to 3.0)	Bravo Zn should be integrated into an overall disease management strategy which includes alternation with a fungicide with a different mode of action. Diseases may only be suppressed and russetting may occur under heavy disease pressure or unfavorable environmental conditions. Apply in sufficient water to obtain adequate coverage, normally 20 to 100 gallons per acre. Begin applications at budbreak (green tip) and repeat at 10-day intervals through early bloom (the minimum retreatment interval is 10 days). Under heavy disease pressure, use the higher rate. Apply by ground or air.
	Rust <i>(Pucciniastrum vaccinii)</i> Septoria leaf spot <i>(Septoria albopunctata)</i>	4 ¹ / ₄ to 5 ³ / ₄ (2.25 to 3.0)	Foliar Use After Harvest (after all berries are harvested): To maintain healthy leaves for the following season, apply in sufficient water to obtain adequate coverage (normally 20 to 100 gallons per acre). Repeat at 10 to 14-day intervals (the minimum retreatment interval is 10 days). Apply by ground or air.

Specific Use Restrictions:

- Do not apply more than 17 pints of Bravo Zn (9.0 lbs. a.i.) per acre during each growing season.
- Do not apply after full bloom (except for foliar use after harvest) or within 42 days of harvest.

Carrot	Alternaria leaf blight <i>(A. dauci)</i> Cercospora leaf spot <i>(C. carotae)</i>	2 ¹ / ₄ to 2 ³ / ₄ (1.125 to 1.5)	Use in sufficient water to obtain adequate coverage. Start applications when disease threatens and repeat at 7 to 10-day intervals (the minimum retreatment interval is 7 days) to maintain control. Apply by ground, air or chemigation.
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Specific Use Restrictions:

- Do not apply more than 29 pints of Bravo Zn (15 lbs. a.i.) per acre during each growing season.
- Bravo Zn may be applied the day of harvest.

Cucurbits Cantaloupe Cucumber Honeydew melon Muskmelon Pumpkin Squash Watermelon	Anthracnose <i>(Colletotrichum spp.)</i> Downy mildew <i>(Pseudoperonospora cubensis)</i> Target spot <i>(Corynespora cassiicola)</i>	2 ¹ / ₄ to 2 ³ / ₄ (1.125 to 1.5)	Use in sufficient water to obtain adequate coverage. Begin applications when plants are in first true leaf stage or when conditions are favorable for disease development. Repeat applications at 7-day intervals (the minimum retreatment interval is 7 days). Note: Spraying mature watermelons may result in sunburn of the upper surface of the fruit. Do not apply Bravo Zn to watermelons when any of the following conditions are present:
	Alternaria leaf blight <i>(A. cucumerina)</i> Alternaria leaf spot <i>(A. alternata)</i> Cercospora leaf spot <i>(C. citrullina)</i> Gummy stem blight / vine decline <i>(Didymella bryoniae)</i> Powdery mildew <i>(Sphaerotheca only)</i> Scab <i>(Cladosporium cucumerinum)</i>	2 ³ / ₄ to 4 ¹ / ₄ (1.5 to 2.25)	<ol style="list-style-type: none"> 1. Intense heat and sunlight 2. Drought conditions 3. Poor vine canopy 4. Other crop and environmental conditions which may be conducive to increased natural sunburn Do not combine Bravo Zn with anything except water for application to watermelons unless your prior use has shown the combination to be noninjurious to watermelons under your conditions of use. Apply by ground, air or chemigation.

Specific Use Restrictions:

- Do not apply more than 30 pints of Bravo Zn (15.75 lbs. a.i.) per acre during each growing season.
- Bravo Zn may be applied the day of harvest.

Bravo® Zn

CROP	DISEASES (Pathogen)	PTS. PRODUCT/A (lbs. a.i./A)	APPLICATION DIRECTIONS			
Onion (Dry bulb) and Garlic	Botrytis leaf blight (<i>Botrytis</i> spp.) Purple blotch (<i>Alternaria porri</i>) Suppression: Botrytis neck rot Downy mildew (<i>Peronospora destructor</i>)	1 ¹ / ₂ to 4 ¹ / ₄ (0.75 to 2.25)	Apply in sufficient water to obtain thorough coverage of tops. Bravo Zn is recommended for use with disease monitoring systems which adjust fungicide rates and frequency of application according to disease hazard. Apply as follows:			
				Low Disease Hazard & Prior to Infection	Low Disease Hazard & Some Disease Present	High Disease Hazard
			Rate per Acre	1 ¹ / ₂ pt.	2 pts.	4 ¹ / ₄ pts.
			Frequency	10 days	7 to 10 days	7 days
			For suppression of neck rot (<i>Botrytis</i> spp.) during storage, a minimum of three weekly applications prior to lifting, using 2 to 4 ¹ / ₄ pints of Bravo Zn per acre, is recommended. The minimum retreatment interval is 7 days. Apply by ground, air or chemigation.			

Specific Use Restrictions:

- Do not apply more than 29 pints of Bravo Zn (15 lbs. a.i.) per acre during each growing season.
- Do not apply within 7 days of harvest.

Onion (green bunching) Leek Shallots Onion and Garlic (grown for seed)	Botrytis leaf blight (<i>Botrytis</i> spp.) Purple blotch (<i>Alternaria porri</i>) Suppression: Downy mildew (<i>Peronospora destructor</i>)	2 ¹ / ₄ to 4 ¹ / ₄ (1.125 to 2.25)	Use in sufficient water to obtain thorough coverage of tops. Begin applications prior to favorable infection periods, and repeat at 7 to 10-day intervals for as long as conditions favor disease (the minimum retreatment interval is 7 days). Use the high rate and a 7-day schedule of applications when heavy dew or rain persist. Apply by ground, air or chemigation.			
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Specific Use Restrictions:

- Do not apply more than 13 pints of Bravo Zn (6.75 lbs. a.i.) per acre during each growing season.
- Do not apply within 7 days of harvest on garlic.
- Do not apply within 14 days of harvest on green bunching onions, leeks or shallots.

Potato	Black dot (<i>Colletotrichum coccodes</i>)	1 ¹ / ₈ (0.6)	Begin applications at the low rate when vines are first exposed and leaf wetness occurs. Repeat applications at 5 to 10-day intervals (the minimum retreatment interval is 5 days).			
	Botrytis vine rot (<i>B. cinerea</i>)	- then -	Begin applying the higher label rates at 5 to 10-day intervals when any one of the following events occur: <ul style="list-style-type: none"> • Vines close within the rows • Late blight forecasting measures 18 disease severity values (DSV) • The crop reaches 300 P-days Increase water spray volume as canopy density increases. Use the highest rate and shortest interval when plants are rapidly growing and disease conditions are severe. Apply by ground, air, or chemigation. Do not exceed a 10 day interval between applications when using chemigation.			
	Early blight (<i>Alternaria solani</i>)	1 ¹ / ₂ to 2 ¹ / ₄ (0.75 to 1.125)				
	Late blight (<i>Phytophthora infestans</i>)					

Specific Use Restrictions:

- Do not apply more than 21.5 pints of Bravo Zn (11.25 lbs. a.i.) per acre during each growing season.
- Do not apply within 7 days of harvest.

Bravo® Zn

CROP	DISEASES (Pathogen)	PTS. PRODUCT/A (lbs. a.i./A)	APPLICATION DIRECTIONS
Tomato	FOLIAGE	2 to 2 ³ / ₄ (1.0 to 1.5)	Apply in sufficient water to obtain adequate coverage. Begin applications when dew or rain occur and disease threatens. Apply on a 7 to 10-day interval for foliage diseases. For fruit diseases, begin at fruit set and apply on a 7 to 14-day interval. Use the highest rate and shortest interval specified when disease conditions are severe. The minimum retreatment interval is 7 days. Apply by ground, air, or chemigation.
	Early blight (<i>Alternaria solani</i>) Gray leaf mold (<i>Fluvia fluva</i> ; <i>Cladosporium</i>) Gray leaf spot (<i>Stemphyllium</i> <i>botryosum</i>) Late blight (<i>Phytophthora</i> <i>infestans</i>) Septoria leaf spot (<i>S. lycopersici</i>) Target spot (<i>Corynespora</i> <i>cassicola</i>)		
	FRUIT	2 ³ / ₄ to 4 (1.5 to 2.1)	
	Alternaria fruit rot (black mold) (<i>A. alternata</i>) Anthracnose (<i>Colletotrichum</i> spp.) Botrytis gray mold (<i>B. cinerea</i>) Late blight fruit rot (<i>P. infestans</i>) Rhizoctonia fruit rot (<i>R. solani</i>)		

Specific Use Restrictions:

- Do not apply more than 28.5 pints of Bravo Zn (15 lbs. a.i.) per acre during each growing season.
- Bravo Zn may be applied the day of harvest.

Tree and Orchard Crops

Apply Bravo Zn in sufficient water and with proper calibration to obtain uniform coverage of tree canopy. For fruit and nut bearing crops, the maximum volume is 300 gallons per acre unless indicated otherwise in the specific use directions.

Application with ground equipment is preferable to aerial application because ground applications generally give better coverage of the tree canopy. If application with ground equipment is not feasible, Bravo Zn may be applied with aircraft using at least 20 gallons of spray per acre.

When concentrate sprays are used or when treating non-bearing or immature trees, the lower rate of Bravo Zn listed may be used. Do not allow livestock to graze in treated areas.

Bravo® Zn

CROP	DISEASES (Pathogen)	PTS. PRODUCT PER (lbs. a.i. per)		APPLICATION DIRECTIONS
		Acre	100 gal.*	
Cherry	Leaf curl (<i>Taphrina deformans</i>) Shot hole (<i>Wilsonomyces carpophilus</i>)	4½ to 6 (2.3 to 3.1)	1½ to 2 (0.75 to 1.0)	For best control of both diseases, apply at leaf fall in late autumn, using sufficient water and proper sprayer calibration to obtain uniform coverage. When conditions favor high disease levels, use the high rate of application and apply once or twice more in mid to late winter before budswell. If the leaf fall application is not practical, application of Bravo Zn for control of leaf curl may be made at any time prior to budswell the following spring. Where shothole occurs, also apply at budbreak to protect newly emerging leaves and at shuck split to prevent fruit infections. Apply by ground or air.
	Brown rot blossom blight (<i>Monilinia</i> spp.)	4½ to 6 (2.3 to 3.1)	1½ to 2 (0.75 to 1.0)	Make one application at popcorn (pink, red or early white bud) and a second application at full bloom. If weather conditions favor disease development, make an additional application at petal fall.
	Black knot (cherry) (<i>Apiosporina morbosa</i>) Cherry leaf spot (<i>Blumeriella jaapii</i>) Scab (<i>Cladosporium carpophilum</i>)	4½ to 6 (2.3 to 3.1)	1½ to 2 (0.75 to 1.0)	In addition to the bloom application listed above, make one application at shuck split. Do not apply Bravo Zn after shuck split and before harvest. If additional disease control is needed before harvest, use another registered fungicide. For control of cherry leaf spot after harvest, make one application to foliage within 7 days after fruit is removed. In orchards with a history of high leaf spot incidence, make a second application 10 to 14 days later. Apply by ground or air.

Specific Use Restrictions:

- Do not apply more than 29.5 pints of Bravo Zn (15.5 lbs. a.i.) per acre during each growing season.
- Bravo Zn may be applied the day of harvest.
- The minimum re-treatment interval is 10 days.

*Volumetric rates to be used only with full dilute spray volume specified on this label for tree and orchard crops.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited.

Pesticide Storage

Store in a cool place. Protect from excessive heat.

Pesticide Disposal

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, pesticide spray or rinse is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal

Do not reuse empty container. Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by alternative methods allowed by state and local authorities.

Returnable Refillable Containers

If Bravo Zn is packaged in a returnable refillable container, then, after use, do not rinse container. The contents of this container cannot be completely removed by cleaning. Return container intact to point of purchase.

Bravo® Zn

This container must only be refilled with Bravo Zn. Refilling with materials other than Bravo Zn will result in contamination and may weaken container. DO NOT REUSE THE CONTAINER FOR ANY OTHER PURPOSE. Before refilling, inspect thoroughly for damage such as cracks, punctures, abrasions, and damaged or worn threads on closure devices. Check for leaks after refilling and before transport. Do not refill or transport a damaged or leaking container.

Bulk and Minibulk Containers

Reseal container and offer for reconditioning, or triple rinse (or equivalent) and offer for recycling or reconditioning, or clean in accordance with manufacturer's instructions.

CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER.

Bravo®, SuperWeatherStik® are trademarks of a Syngenta Group Company.

Dipel® is a registered trademark of Valent BioSciences Corporation

Latron B-1956® and Latron AG-98® are trademarks of Dow AgroSciences LLC

For non-emergency (e.g., current product information), call 1-800-334-9481.
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Manufactured for:
GB Biosciences Corporation
P.O. Box 18300
Greensboro, North Carolina 27419-8300
www.syngenta-us.com

SCP 50534-204A-M1D 0408



Agricultural Fungicide

Active Ingredient: Chlorothalonil (tetrachloroisophthalonitrile)	38.5%
Other Ingredients:	61.5%
Total:	100.0%

Contains 4.17 pounds chlorothalonil per gallon (500 grams per liter)

See additional precautionary statements and directions for use inside booklet.

*Covered under U.S. Pat. No. 5,667,795

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

EPA Reg. No. 50534-204

EPA Est. 50534-TX-001^{GBY}

EPA Est. 070989-AR-001^{OMB}

(Superscript is first three letters of batch code on container)

Bravo®, SuperWeatherStik® are trademarks of a Syngenta Group Company.

Manufactured for:

GB Biosciences Corporation

P.O. Box 18300

Greensboro, North Carolina 27419-8300

www.syngenta-us.com

SCP 50534-204A-M1D 0408

2.5 gallons

Net Contents

KEEP OUT OF REACH OF CHILDREN. WARNING/ AVISO

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

Precautionary Statements

Hazards to Humans and Domestic Animals

WARNING/AVISO

May be fatal if inhaled. Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Do not breathe spray mist. Avoid contact with skin, eyes, or clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

FIRST AID

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for further 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.

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 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.

Note to Physician: Persons suffering with temporary allergic skin reactions may respond to treatment with oral antihistamines and topical or oral steroids.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

HOT LINE NUMBER: For 24 Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire, or Accident), Call 1-800-888-8372.

Environmental Hazards

This product is toxic to aquatic invertebrates and wildlife. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark.

Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment wash waters or rinsate.

This chemical is known to leach through soil into groundwater under certain conditions as a result of label use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

This chemical can contaminate surface water through spray drift. Under some conditions, it may also have a high potential for runoff into surface water for several days to weeks after application. These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas overlying extremely shallow ground water, areas with infield canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas over-laying tile drainage systems that drain to surface water.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited.

Pesticide Storage

Store in a cool place. Protect from excessive heat.

Pesticide Disposal

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, pesticide spray or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal

Do not reuse empty container. Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by alternative methods allowed by state and local authorities.

CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER.

Chemigation

Refer to supplemental labeling in attached booklet for use directions on chemigation. Do not apply this product through any type of irrigation system, unless the supplemental labeling on chemigation is followed.

GB BIOSCIENCES™ CORPORATION

Syngenta Crop Protection, Inc.
Post Office Box 18300
Greensboro, NC 27419

In Case of Emergency, Call
1-800-888-8372

1. PRODUCT IDENTIFICATION

Product Name:	BRAVO ZN	Product No.:	A7867G
EPA Signal Word:	Warning		
Active Ingredient(%):	Chlorothalonil (38.5%)	CAS No.:	1897-45-6
Chemical Name:	Tetrachloroisophthalonitrile		
Chemical Class:	Chlorinated Benzonitrile Fungicide		
EPA Registration Number(s):	50534-204-100	Section(s) Revised:	3, 12, 15

2. HAZARDS IDENTIFICATION
Health and Environmental

Toxic by inhalation. Irritating to eyes and skin. May cause sensitization by skin contact.
 Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Hazardous Decomposition Products

May decompose at high temperatures forming toxic gases.

Physical Properties

Appearance: Gray viscous suspension
 Odor: Slight

Unusual Fire, Explosion and Reactivity Hazards

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Propylene Glycol	Not Established	Not Established	50 ppm TWA ****	No
Silica, amorphous	80 mg/m ³ /% SiO ₂ TWA	Not Established	6 mg/m ³ TWA **	IARC 3
Chlorothalonil (38.5%)	Not Established	Not Established	0.1 mg/m ³ TWA ***	IARC Group 2B

** recommended by NIOSH

*** Syngenta Occupational Exposure Limit (OEL)

**** Recommended by AIHA (American Industrial Hygiene Association)

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.
 Syngenta Hazard Category: D, S

4. FIRST AID MEASURES

Have the product container, label or Material Safety Data Sheet with you when calling Syngenta (800-888-8372), a poison control center or doctor, or going for treatment.

- Ingestion: If swallowed: Call Syngenta (800-888-8372), a poison control center or doctor immediately for treatment advice. Have the person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so after calling 800-888-8372 or by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
- Eye Contact: If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Skin Contact: If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Inhalation: If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call Syngenta (800-888-8372), a poison control center or doctor for further treatment advice.

Notes to Physician

There is no specific antidote if this product is ingested.

Treat symptomatically.

Persons suffering a temporary allergic reaction may respond to treatment with antihistamines or steroid creams and/or systemic steroids.

Medical Condition Likely to be Aggravated by Exposure

None known.

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method):	Not Available	
Flammable Limits (% in Air):	Lower: Not Applicable	Upper: Not Applicable
Autoignition Temperature:	Not Applicable	
Flammability:	Not Applicable	

Unusual Fire, Explosion and Reactivity Hazards

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

In Case of Fire

Use dry chemical, foam or CO₂ extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and collect runoff.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

7. HANDLING AND STORAGE

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

- Ingestion: Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.
- Eye Contact: Where eye contact is likely, use chemical splash goggles.
- Skin Contact: Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.
- Inhalation: A respirator is not normally required when handling this substance. Use effective engineering controls to comply with occupational exposure limits.

In case of emergency spills, use a NIOSH approved respirator with any N, R, P or HE filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance: Gray viscous suspension
- Odor: Slight
- Melting Point: Not Applicable
- Boiling Point: 212 °F
- Specific Gravity/Density: 1.28 g/ml (water = 1)
- pH: 7.5 - 9.5

Solubility in H₂O

- Chlorothalonil: 0.81mg/l @ 77°F (25°C)

Vapor Pressure

- Chlorothalonil: 5.7 x 10⁻⁷ mmHg @ 77°F (25°C)

10. STABILITY AND REACTIVITY

- Stability: Stable under normal use and storage conditions.
- Hazardous Polymerization: Material is not known to polymerize.
- Conditions to Avoid: None known.
- Materials to Avoid: Metals such as aluminum.
- Hazardous Decomposition Products: May decompose at high temperatures forming toxic gases.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

- Ingestion: Slightly Toxic
Oral (LD50 Rat) : 3,750 mg/kg body weight
- Dermal: Slightly Toxic
Dermal (LD50 Rabbit) : > 2,000 mg/kg body weight
- Inhalation: Moderately Toxic
Inhalation (LC50 Rat) : 0.25 mg/l air - 4 hours
- Eye Contact: Mildly Irritating (Rabbit)
- Skin Contact: Moderately Irritating (Rabbit)
- Skin Sensitization: A moderate skin sensitizer in animal tests.

Reproductive/Developmental Effects

Chlorothalonil: No evidence of adverse developmental effects in rabbit and rat studies.

Chronic/Subchronic Toxicity Studies

Chlorothalonil: In dogs, 1 years administration caused a significant decrease in body weight gain and increases in absolute liver and kidney weights.

Neurotoxicity: No evidence in regulatory studies.

Carcinogenicity

Chlorothalonil: No evidence of carcinogenicity in dogs after administration for up to one year. Treatment related increases in the incidence of renal tubular adenoma and carcinoma were observed in rats and male mice. Squamous cell adenomas and carcinomas were also observed in the forestomach of both species. The forestomach tumors seen in rodent studies are not relevant to human health, as humans do not possess an anatomical equivalent of the rodent forestomach. The relevance of renal tumors to human health is unclear, although metabolism data suggest that the dog, a species that is resistant to chlorothalonil-induced renal injury, may be more representative of humans than the rat. IARC identifies chlorothalonil as a 2B carcinogen (possibly carcinogenic to humans).

Other Toxicity Information

Studies on rats and mice have suggested that technical chlorothalonil (97%), when fed at high levels in the diet, may have oncogenic potential to these laboratory animals. However, neither chlorothalonil nor its metabolites interact with DNA and thus are not mutagenic. Tumor formation has been related to a non-genotoxic mechanism of action for which threshold levels have been established in rats and mice. Comprehensive dietary and worker exposure studies have shown exposure levels for humans to be well below these threshold levels. In addition, surveillance of chlorothalonil plant workers for over twenty years has not demonstrated any increase in oncogenic potential to humans.

Toxicity of Other Components

Propylene Glycol

Reported to cause central nervous system depression (anesthesia, dizziness, confusion), headache and nausea. Also, eye irritation may occur with lacrimation but no residual discomfort or injury. Prolonged contact to skin may cause mild to moderate irritation and possible allergic reactions. Chronic dietary exposure caused kidney and liver injury in experimental animals.

Silica, amorphous

Dusts in high concentrations may cause skin, eye and respiratory tract irritation.

Target Organs

Active Ingredients

Chlorothalonil: Lung, eye, kidney

Inert Ingredients

Propylene Glycol: CNS, skin, eye, kidney, liver

Silica, amorphous: Skin, eye, respiratory tract

12. ECOLOGICAL INFORMATION

Summary of Effects

Chlorothalonil

Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Eco-Acute Toxicity

Chlorothalonil

Green Algae 5-day EC50 190 ppb
Invertebrates (Water Flea) 48-hour EC50 70 ppb
Fish (Rainbow Trout) 96-hour LC50 47 ppb
Fish (Bluegill Sunfish) 96-hour LC50 26.3 ppb
Birds (8-day dietary - Bobwhite Quail) LC50 5200 ppm
Birds (8-day dietary - Mallard Duck) LC50 > 10000 ppm
Bees 48-hour LD50 > 181 ug/bee

Eco-Chronic Toxicity

Chlorothalonil

Bobwhite Quail Reproduction 21-week LOEL 250 ppm
Mallard Duck Reproduction 19-week LOEL 100 ppm
Fish (Fathead Minnow) 168-day LOEC 6.5 ppb

Environmental Fate

Chlorothalonil:

The information presented here is for the active ingredient, chlorothalonil.

Low bioaccumulation potential. Not persistent in soil or water. Low mobility in soil. Sinks in water (after 24 h).

13. DISPOSAL CONSIDERATIONS

Disposal

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste: Not Applicable

Listed Waste: Not Applicable

14. TRANSPORT INFORMATION

DOT Classification

Ground Transport - NAFTA

Proper Shipping Name:

Non-Bulk (\leq 119 gal.) - Not regulated.

Bulk ($>$ 119 gal.) - Environmentally Hazardous Substance, Liquid, N.O.S. (Chlorothalonil), Marine Pollutant

Hazard Class or Division: Class 9

Identification Number: UN 3082

Packing Group: PG III

Note: Non-bulk containers involved in import/export may be shipped under international classification.

B/L Freight Classification

Fungicides, NOIBN, O/T Poison

Comments

Water Transport - International

Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Chlorothalonil), Marine Pollutant

Hazard Class or Division: Class 9

Identification Number: UN 3082

Packing Group: PG III

Air Transport - NAFTA

Proper Shipping Name:

Non-Bulk (\leq 119 gal.) - Not regulated.

Bulk - Prohibited.

Air Transport - International

Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Chlorothalonil)

Hazard Class or Division: Class 9

Identification Number: UN 3082

Packing Group: PG III

Packing Instructions: 914

Packaging Limitations: Inner packages over 5 liters and single packages over 450 liters cannot be shipped by aircraft.

15. REGULATORY INFORMATION

EPCRA SARA Title III Classification

Section 311/312 Hazard Classes: Acute Health Hazard
Chronic Health Hazard

Section 313 Toxic Chemicals: Chlorothalonil (38.5%) (CAS No. 1897-45-6)

California Proposition 65

Not Applicable

CERCLA/SARA 302 Reportable Quantity (RQ)

None

RCRA Hazardous Waste Classification (40 CFR 261)

Not Applicable

TSCA Status

Exempt from TSCA, subject to FIFRA

16. OTHER INFORMATION

NFPA Hazard Ratings

Health: 4
Flammability: 1
Instability: 0

HMIS Hazard Ratings

Health: 2
Flammability: 1
Reactivity: 0

0	Minimal
1	Slight
2	Moderate
3	Serious
4	Extreme

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 11/12/1998

Revision Date: 2/6/2007

Replaces: 8/31/2004

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

End of MSDS



Potato Program

P.O. Box 727, Presque Isle, ME 04769, (207) 764-3361; Fax (207) 764-3362

December 3, 2009

Jeff Zelna (jeff.zelna@syngenta.com)

Technical Support Representative

Syngenta Crop Protection

4598 Reliant Rd.

Jamesville, New York 13078

Dear Jeff:

I am requesting your company to submit a 24c SLN label request to the State of Maine for Bravo® Zn (EPA Reg. Number 50534-204-100) to increase the total allowable active ingredient per acre from 12.0 lb. per year to 16.0 pounds per year. (<http://www.umaine.edu/umext/potatoprogram/Pest%20Control%20Guide/all.pdf>) (This would mean raising the allowable use of Bravo® Zn from 21 pints per acre to 30½ pints per acre). I would like to see this limited to “Control of Late Blight (*Phytophthora infestans*) for Long-Season Potatoes.” Special local needs (24c) labels for increased total allowable chlorothalonil rates exist in other states (MI, MN, ND, NE, WI) and I was hoping that your company would support a similar label for Maine. I have enclosed a sample mock up a potential label.

The need for increased allowable chlorothalonil rates is real. The high levels of late blight present in the past two growing seasons in Maine have been very trying. Many growers with long-season varieties ran out of chlorothalonil limits and EDBC materials were not available. I expect Maine growers to only use the increased limits under severe late blight epidemics.

This SLN label would allow the applicators the flexibility to deal with our unique environment. The Pesticide Registrar requires a letter requesting a 24 (c) registration and a completed application (8570-25). The contact information is:

www.umaine.edu/umext/potatoprogram www.umext.maine.edu

The University of Maine and the U.S. Department of Agriculture cooperating.
Cooperative Extension provides equal opportunities in programs and employment.

A Member of the University of Maine System



Potato Program

P.O. Box 727, Presque Isle, ME 04769, (207) 764-3361; Fax (207) 764-3362

Mary Tomlinson (mary.e.tomlinson@maine.gov)
Pesticide Registrar
Maine Board of Pesticides Control
28 State House Station
Augusta, ME 04333-0028
FAX: (207) 287-7548

I urge you to apply to the Maine Board of Pesticides Control at the above address.
Please feel free to contact me if have questions or require further information.

Sincerely,

A handwritten signature in black ink that reads 'Steven B. Johnson'. The signature is written in a cursive style and is underlined.

Steven B. Johnson, Ph.D.
Crops Specialist

Enclosure



Potato Program
P.O. Box 727, Presque Isle, ME 04769, (207) 764-3361; Fax (207) 764-3362

December 3, 2009

Mary Tomlinson (mary.e.tomlinson@maine.gov)
Pesticide Registrar
Maine Board of Pesticides Control
28 State House Station
Augusta, ME 04333-0028

Dear Mary:

I am enclosing a copy of the letter I sent to Jeff Zelna of Syngenta requesting his company to submit a 24c SLN label request to the State of Maine for Bravo® Zn (EPA Reg. Number 50534-204-100) to increase the total allowable active ingredient per acre from 12.0 lb. per year to 16.0 pounds per year (<http://www.umaine.edu/umext/potatoprogram/Pest%20Control%20Guide/all.pdf>). (This would mean raising the yearly allowable use of Bravo® Zn from 21 pints per acre to 30½ pints per acre). I support this application as it is important to the potato industry in Maine. I would like to see this limited to “Control of Late Blight (*Phytophthora infestans*) for Long-Season Potatoes.” Chlorothalonil, (tetrachloroisophthalonitrile) has been used safely and effectively for control of plant diseases since its introduction in 1966. Chlorothalonil is critical in IPM programs for fungicide resistance group rotation as it is the only Group M5 material. I expect Maine growers to only use the increased limits under severe late blight epidemics.

The need for increased allowable chlorothalonil rates is real. The high levels of late blight present in the past two growing seasons in Maine have been very difficult for potato growers. I think many small farms producing potatoes and tomatoes recently experienced what commercial potato farmers have been dealing with for the past two seasons and it was not a pretty picture. I established the potato late blight control program for potatoes in Maine is based on protectant materials like



Potato Program

P.O. Box 727, Presque Isle, ME 04769, (207) 764-3361; Fax (207) 764-3362

chlorothalonil and EDBCs (Johnson, S. B. 2006. The Maine Approach to Late Blight Prediction and Control. In: Schepers, H.T.A.M (editor): Proceedings of the Ninth Workshop of an European Network for Development of an Integrated Control Strategy of Potato Late Blight Special Report No. 11. Wageningen, the Netherlands, Applied Plant Research, Wageningen pp. 185-194.). The heavy late blight pressure could not have come at a worse time. Owing to a production facility closure (in France), EDBC materials were in very short supply. Supply was so short that dealers that were able to get these materials were limited to less than 80 percent of the amounts they ordered the previous year. Many growers with long-season varieties ran out of chlorothalonil limits and EDBC materials were not available. This added increased risk to potato production. This SLN label would allow the applicators the flexibility to deal with our unique environment. Special local needs (24c) labels for increased total allowable chlorothalonil rates exist in other states (MI, MN, ND, NE, WI) so while this is first request for Maine, it is not the first time this issue has arisen.

Again, I support this application as it is important to the potato industry in Maine. If you have any further questions or require additional information, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Steven B. Johnson'.

Enclosure



State Regulatory Affairs
410 Swing Road
Greensboro, NC 27419

Telephone: (336) 632-2146
Fax: (336) 632 2884

December 15, 2009

Mary Tomlinson
Pesticide Registrar
Maine Board of Pesticides Control
28 State House Station
Augusta, ME 04333-0028

**SUBJECT: Special Local Need Application for the Use of Bravo®Zn (EPA Reg. No. 50534-204)
on Potato**

Dear Ms. Tomlinson:

On behalf of GB Biosciences (GBB), the basic registrant of Bravo ZN (EPA Reg No. 50534-204), Syngenta Crop Protection is submitting a special local need application for Bravo Zn. Syngenta markets Bravo Zn under a supplemental distributor agreement with GB Biosciences. Only Syngenta labels will be distributed. This request was initiated by Dr. Steve Johnson with the University of Maine.

This SLN request is supported by the existing chlorothalonil tolerances under 40 CFR 180.275.

To satisfy EPA SLN requirements, I've included the following documentation in this application package,

- Draft Special Local Need label for GBB Biosciences
- Completed EPA Application form 8570-25
- Support letters from Dr. Steve Johnson, University of Maine
- Federal label and MSDS for Bravo Zn

Syngenta believes it has included sufficient evidence to support approval of this application. However, please feel free to contact me at 1 (800) 334-9481, x2146 if you have questions or require any further data or information.

Sincerely,

Larry Zang
Senior Regulatory Manager
Syngenta Crop Protection



JOHN ELIAS BALDACCI
GOVERNOR

STATE OF MAINE
MAINE DEPARTMENT OF AGRICULTURE, FOOD & RURAL RESOURCES
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0028

SETH BRADSTREET
COMMISSIONER
HENRY JENNINGS
DIRECTOR

TO: Board Members
FROM: Lebelle Hicks PhD DABT
RE: 24(c) for Bravo ZN (EPA# 50534-204)

April 8, 2010

The pending 24(c) request for Bravo ZN (EPA# 50534-204) is similar to an approved label for potatoes in Minnesota. Regarding the Minnesota 24(c), in 1996 EPA issued a memo regarding the issue of tolerance and the higher annual usage. According to EPA 1996, the tolerance of 0.1 ppm for chlorothalonil in potatoes will not be violated with the increased annual usage of 16 lbs ai/A/yr.



-----Original Message-----

From: Kish.Tony@epamail.epa.gov [<mailto:Kish.Tony@epamail.epa.gov>]

Sent: Monday, February 22, 2010 9:39 AM

To: Jennings, Henry

Cc: Kearns.Rosemary@epamail.epa.gov

Subject: UPDATE - 24C for Chlorothalnil

Henry - good news! Attached below is the base review that supported all the SLNs which requested using chlorothalonil on potatoes at 16 lbs ai/acre at 7 a day PHI. They all need the revised PPE/REI labeling in this review. When you submit the SLN please include a copy of this review and email which will speed the review/approval process.

(See attached file: [Untitled].pdf)

Thanks,
Tony Kish, Product Manager,
Team 22, Fungicide Branch;
Registration Division
703-308-9443

.....
Hi Tony:

Larry Zang of Syngenta had the answers to your questions. The Maine 24C would be identical current 24Cs in WI, NE, ND, MN, and MI. These 24C's do not change the phi from the federal section 3 label, they increase the total seasonal load from 11.25 lb ai to 16 lb ai per season.

Henry Jennings, Director
Maine Board of Pesticides Control
207-287-2731
henry.jennings@maine.gov

.....
-----Original Message-----

From: larry.zang@syngenta.com [<mailto:larry.zang@syngenta.com>]

Sent: Monday, February 01, 2010 12:58 PM

To: Jennings, Henry

Subject: RE: 24C for Chlorothalnil

Henry, the draft Section 24C sent to ME is identical to ones approved in other states (see attachments). These 24C's do not change the phi from the federal section 3 label, they increase the total seasonal load from 11.25 lb ai to 16 lb ai per season.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

FAX COVER

To: Adora Clark Date: 3-10-09

Recipient Fax Number: (336) 632-5658

From: Rose Kearns Phone: (703) 305-5611

Return Fax Number: (~~336~~⁷⁰³) 308-1825

Number of Pages (including cover sheet) ()

COMMENTS: Good morning Adora. Here are
the letters that we discussed
earlier. The originals are in the
mail.

Rose



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

Adora Clark
Syngenta Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419

FEB 26 2009

SUBJECT: Label Amendment to Request Application of Accepted Acute Inhalation Study
Bravo ZN
EPA Reg. No. 50534-204
Your Submission Dated October 10, 2008
Decision Number D-401488

Dear Ms. Clark:

The amended labeling referred to above, requesting that the approved acute inhalation study (MRID 45684001) with toxicological category III, also be applied toward the above mentioned submission and to remove the respirator restriction except for enclosed areas as outlined in the Reregistration Eligibility Document (RED; 1999), in connection with registration under the Federal Insecticide Fungicide and Rodenticide Act (FIFRA), as amended, is acceptable provided that you:

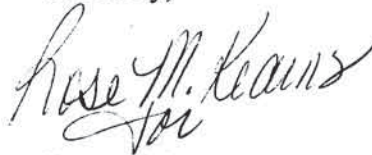
1. The Hazards to Humans and Domestic Animals in both the container label and master label sections must read as follows: "Harmful if absorbed through skin. Harmful if inhaled. Harmful if swallowed. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Wear long-sleeved shirt and long pants, socks, shoes, and chemical resistant gloves (such as natural rubber, Selection Category A. Remove and wash contaminated clothing before reuse. Avoid breathing spray mist. Avoid contact with eyes or clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Submit one copy of your final printed labeling before you release the product for shipment.

2

If you have any questions regarding this correspondence, contact Rose Kearns of my staff by phone at 703-305-5611 or via email at kearns.rosemary@epa.gov or myself at 703-308-9443 or via email at kish.tony@epa.gov.

Sincerely,

A handwritten signature in cursive script that reads "Rose M. Kearns". Below the main signature, there is a smaller, less legible signature that appears to be "TK".

Tony Kish
Product Manager Team 22
Fungicide Branch
Registration Division (7505P)

Enclosure



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

FEB 26 2009

Adora Clark
Syngenta Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419

SUBJECT: Label Amendment to Request Application of Accepted Acute Inhalation Study
Daconil ZN Flowable Fungicide
EPA Reg. No. 50534-211
Your Submission Dated October 10, 2008
Decision Number D-401485

Dear Ms. Clark:

The amended labeling referred to above, requesting that the approved acute inhalation study (MRID 45684001) with toxicological category III, also be applied toward the above mentioned submission and to remove the respirator restriction except for enclosed areas as outlined in the Reregistration Eligibility Document (RED; 1999), in connection with registration under the Federal Insecticide Fungicide and Rodenticide Act (FIFRA), as amended, is acceptable provided that you:

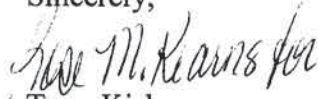
The Hazards to Humans and Domestic Animals section on the Master and Container label must read as follows: "Harmful if absorbed through skin. Harmful if inhaled. Harmful if swallowed. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Wear long-sleeved shirt and long pants, socks, shoes, and chemical resistant gloves (such as natural rubber, Selection Category A. Remove and wash contaminated clothing before reuse. Avoid breathing spray mist. Avoid contact with eyes or clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Submit one copy of your final printed labeling before you release the product for shipment.

2

If you have any questions regarding this correspondence, contact Rose Kearns of my staff by phone at 703-305-5611 or via email at kearns.rosemary@epa.gov or myself at 703-308-9443 or via email at kish.tony@epa.gov.

Sincerely,

A handwritten signature in cursive script that reads "Tony Kish".

Tony Kish

Product Manager Team 22

Fungicide Branch

Registration Division (7505P)

Enclosure



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

FEB 26 2009

Adora Clark
Syngenta Crop Protection, Inc.
P.O. box 18300
Greensboro, NC 27419

SUBJECT: Label Amendment to Request Application of Accepted Acute Inhalation Study
Bravo 500
EPA Reg. No. 50534-8
Your Submission Dated October 10, 2008
Decision Number D-401487

Dear Ms. Clark:

The amended labeling referred to above, requesting that the approved acute inhalation study (MRID 45684001) with toxicological category III, also be applied toward the above mentioned submission and to remove the respirator restriction except for enclosed areas as outlined in the Reregistration Eligibility Document (RED; 1999), in connection with registration under the Federal Insecticide Fungicide and Rodenticide Act (FIFRA), as amended, is acceptable provided that you make the following change:

1. The Hazards to Humans and Domestic Animals section must read as follows:
"Harmful if absorbed through skin. Harmful if inhaled. Harmful if swallowed. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Wear long-sleeved shirt and long pants, socks, shoes, and chemical resistant gloves (such as natural rubber, Selection Category A. Remove and wash contaminated clothing before reuse. Avoid breathing spray mist. Avoid contact with eyes or clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Submit one copy of your final printed labeling before you release the product for shipment.

2

If you have any questions regarding this correspondence, contact Rose Kearns of my staff by phone at 703-305-5611 or via email at kearns.rosemary@epa.gov or myself at 703-308-9443 or via email at kish.tony@epa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Tony Kish".

Tony Kish

Product Manager Team 22

Fungicide Branch

Registration Division (7505P)

Enclosure



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

Adora Clark
Syngenta Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419

FEB 26 2009

SUBJECT: Label Amendment to Request Application of Accepted Acute Inhalation Study
Daconil 2787 Flowable Fungicide
EPA Reg. No. 50534-9
Your Submission Dated October 10, 2008
Decision Number D-401486

Dear Ms. Clark:

The amended labeling referred to above, requesting that the approved acute inhalation study (MRID 45684001) with toxicological category III, also be applied toward the above mentioned submission and to remove the respirator restriction except for enclosed areas as outlined in the Reregistration Eligibility Document (RED; 1999), in connection with registration under the Federal Insecticide Fungicide and Rodenticide Act (FIFRA), as amended, is acceptable provided that you make the following change:

1. The Hazards to Humans and Domestic Animals section must read as follows:
"Harmful if absorbed through skin. Harmful if inhaled. Harmful if swallowed. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Wear long-sleeved shirt and long pants, socks, shoes, and chemical resistant gloves (such as natural rubber, Selection Category A). Remove and wash contaminated clothing before reuse. Avoid breathing spray mist. Avoid contact with eyes or clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Submit one copy of your final printed labeling before you release the product for shipment.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

Adora Clark
Syngenta Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419

FEB 26 2009

SUBJECT: Label Amendment to Request Application of Accepted Acute Inhalation Study
Countdown L & G
EPA Reg. No. 50534-216
Your Submission Dated October 10, 2008
Decision Number D-401484

Dear Ms. Clark:

The amended labeling referred to above, requesting that the approved acute inhalation study (MRID 45684001) with toxicological category III, also be applied toward the above mentioned submission and to remove the respirator restriction except for enclosed areas as outlined in the Reregistration Eligibility Document (RED; 1999), in connection with registration under the Federal Insecticide Fungicide and Rodenticide Act (FIFRA), as amended, is acceptable provided that you make the following change:

The Hazards to Humans and Domestic Animals section in both the container label and master label must read as follows: "Harmful if absorbed through skin. Harmful if inhaled. Harmful if swallowed. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Wear long-sleeved shirt and long pants, socks, shoes, and chemical resistant gloves (such as natural rubber, Selection Category A) Remove and wash contaminated clothing before reuse. Avoid breathing spray mist. Avoid contact with eyes or clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Submit one copy of your final printed labeling before you release the product for shipment.

If you have any questions regarding this correspondence, contact Rose Kearns of my staff by phone at 703-305-5611 or via email at kearns.rosemary@epa.gov or myself at 703-308-9443 or via email at kish.tony@epa.gov.

Sincerely,



Tony Kish
Product Manager Team 22
Fungicide Branch
Registration Division (7505P)

Enclosure

Chem (24c)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCESMEMORANDUM

DATE: 5/9/96

SUBJECT: MN960001 & MN960002, SECTION 24(C) SPECIAL LOCAL NEED
REGISTRATION FOR THE USE OF CHLOROTHALONIL ON POTATOES
IN MINNESOTA

DP Code: D225013, D225014	Chem #: 081901
40 CFR: 180.275	Caswell: 215B
Reg #: 50534-188, 50534-204	MRID #: N/A
Trade Name: Bravo 720 & Bravo Zn	Type: Fungicide

TO: James Stone/Cynthia Giles-Parker, PM Team 22
FHB/Registration Division (7505C)FROM: Tina Manville *Tina Manville*
William Dykstra *Bill Dykstra*
Jeff Herndon *J. Jeffrey Herndon*
Pilot Interdisciplinary Risk Assessment Team
Risk Characterization and Analysis Branch
Health Effects Division (7509C)THRU: Michael Metzger, Acting Branch Chief *Michael J. Metzger*
Risk Characterization and Analysis Branch
Health Effects Division (7509C)INTRODUCTION

On March 13, 1996, the State of Minnesota issued Special Local Need (SLN) registrations [24(c)s] for the use of up to 16 pounds a.i. per acre per season of chlorothalonil, when using Bravo 720 and Bravo Zn on long-season varieties of potatoes for the control of late blight. This use is also being sought as a 24(c) in the states of Michigan, North Dakota, South Dakota and Wisconsin. The current federally registered Bravo 720 and Bravo Zn labels do not state a maximum seasonal application rate in pounds a.i. per acre. Chemistry Branch approved ISK Biotech's proposal to establish a maximum seasonal rate of 12 lbs a.i. per acre for potatoes (see W.O. Smith memo, 8/9/95). The HED Chapter of the Chlorothalonil Reregistration Eligibility Document (RED) was

completed on 2/13/96, under the assumption that the maximum seasonal rate was 12 lbs a.i. per acre.

RECOMMENDATION

Provided the additional personal protective equipment (PPE) as specified below is worn by mixer/loaders and the restricted entry interval (REI) is modified as recommended in the HED Chapter of the Chlorothalonil RED, then PIRAT has no objection to the issuance of the Minnesota SLN registration for the use of up to 16 lbs a.i. per acre per season of chlorothalonil on potatoes. In order for worker risk estimates not to exceed HED's level of concern, mixer/loaders must wear chemical-resistant aprons and dust/mist respirators over the current PPE specified on the labels. In order for reentry worker risk estimates not to exceed HED's level of concern, a 48-hour REI for non-hand-labor activities (machine harvesting, hoeing) and a 4 day REI for hand-labor tasks (hand harvesting) must be added to the 24(c) labels.

CONCLUSIONS

Hazard Assessment

There have been no changes in the toxicological endpoints for occupational or dietary risk estimation since the completion of the HED Chlorothalonil RED Chapter on 2/13/96.

Occupational Exposure

The occupational exposure to chlorothalonil from applying 16 lbs a.i./acre/season to potatoes is not any greater than the occupational exposure estimates presented in the HED Chlorothalonil RED Chapter (2/13/96). In the chapter, it was determined that the short-term worker exposure risk did not exceed HED's level of concern. Cancer risks from exposure to HCB (a contaminant of chlorothalonil) were estimated to be less than 1×10^{-4} . Cancer risks from exposure to chlorothalonil were estimated to be less than 1×10^{-4} for most scenarios, including those applicable to this 24(c).

In the HED RED chapter, there were concerns with the intermediate-term worker risk for certain mixer/loaders and for post-application reentry activities. Both Bravo 720 and Bravo Zn are liquid formulations and the applicator scenario with the highest exposure potential is mixing/loading for aerial applications. In the RED, the intermediate-term margins of exposure (MOE) were calculated for mixers/loaders when using liquids in open systems for aerial applications to field crops such as tomatoes at similar application rates to the scenario in this 24(c). The MOE was calculated to be 88. For mixer/loaders, it was recommended that a chemical-resistant apron and dust/mist

respirator (if not on the current labels) be added to the current work clothing and PPE of long-sleeved shirt and long pants, chemical-resistant gloves, shoes plus socks, and protective eyewear. With the additional PPE, MOEs are above the level of concern (>100).

The current REI, established by the Worker Protection Standard, is based on the acute toxicity of the technical grade active ingredient. The 48-hour REI is based on chlorothalonil being in toxicity category I for primary eye irritation. The RED calculated the REI for different crops by looking at worker post-application exposure based on foliar dislodgeable residue studies submitted by the registrant. In addition, eye incidents reports exist for reentry activities following chlorothalonil application. The chapter recommends the following which should be added to the 24(c) labels:

"Do not enter or allow worker entry into treated areas to perform non-hand-labor tasks (mechanical harvesting, scouting, irrigation-related tasks, etc.) during the restricted entry interval of 48 hours. PPE required for early entry to treated areas to perform non-hand-labor tasks 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,*
- chemical-resistant gloves,*
- shoes plus socks, and*
- protective eyewear."*

"Do not enter or allow worker entry into treated areas to perform hand-labor tasks (hand harvesting, pruning, staking, thinning, weeding, packing in the field, etc.) during the restricted entry interval (REI) of 4 days (except for tomatoes and cut-flower and cut-foilage crops). Do not enter or allow worker entry into treated areas to perform hand-labor tasks (hand harvesting, pruning, staking, bundling, etc.) during the restricted entry interval (REI) of 14 days for tomatoes and 11 days for greenhouse- and nursery-grown cut-flower and cut-foilage crops. PPE required for early entry to treated areas to perform hand-labor tasks 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 over short-sleeve shirt and short pants,*
- chemical-resistant gloves,*
- chemical-resistant footwear plus socks,*
- protective eyewear,*
- chemical-resistant headgear for overhead exposure."*

Dietary Exposure

Few field trial data support the proposed increase in the seasonal label rate from 12 lbs a.i./acre/season to 16. However, the general trends apparent in the field trial data allow PIRAT to conclude that the existing tolerance of 0.1 ppm is adequate to cover the proposed use and that residues on potatoes are not expected to be increased over present levels. As noted in the memo of W.O. Smith dated 8/9/95:

"Chlorothalonil is a contact fungicide that is not translocated from foliage to potato tubers. Any residues occurring on potatoes are most likely due to contamination from the soil at the time of harvest. The available residue data confirm that the level of residues on tubers is not correlated with the application rate or number of applications to the foliage so much as it is to the PHI. Residues in the available studies do not exceed the established tolerance 7 days following applications of as much as 9 x the maximum proposed rate (MRID 40183404). We also note that chlorothalonil has been used on potatoes for a number of years with no label restrictions on maximum seasonal rate and with no PHI, yet residue monitoring by FDA and by USDA has demonstrated no significant occurrence of chlorothalonil residues on potatoes. Of 1637 potato samples surveyed by the USDA Pesticide Data Program between 1992 and 1994, only one sample contained detectable (>0.02 ppm) residues of chlorothalonil. Surveillance monitoring of 635 potato samples by FDA and the states between 1989 and 1993 resulted in only two samples containing detectable (> 0.01 ppm) levels of chlorothalonil."

cc: Tina Manville (PIRAT), Bill Dykstra (PIRAT), Jeff Herndon (PIRAT), PIRAT, M. Clock (RCAB), T. McMahon (TOX II), Caswell (215B), OREB (# 081901), CHEM (24c file), L. Pemberton (7505W)

RDI:PIRAT 5/9/96, K. Whitby 5/9/96
7509C:RCAB:PIRAT:CM2:Rm8....:305-....:disk id:date