



Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

State of West Virginia
 Request for Quotation
 07 - Chemicals

Proc Folder: 217244

Doc Description: Cacapon State Park Purchase of Golf Course Chemicals

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2016-07-28	2016-08-30 13:30:00	CRFQ 0310 DNR1700000001	1

BID RECEIVING LOCATION
 BID CLERK
 DEPARTMENT OF ADMINISTRATION
 PURCHASING DIVISION
 2019 WASHINGTON ST E
 CHARLESTON WV 25305
 US

(Home Office)

VENDOR
 Vendor Name, Address and Telephone Number:
 Advanced Turf Solutions
 12955 Ford Dr.
 Fishers, In. 46038
 317-842-1088

08/29/16 14:50:30
 WV Purchasing Division

FOR INFORMATION CONTACT THE BUYER
 Guy Nisbet
 (304) 558-2596
 guy.l.nisbet@wv.gov

Signature X *Paul Selig* FEIN # 35-2152001 DATE 8/26/16
 All offers subject to all terms and conditions contained in this solicitation

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

Paul Taliaferro, Territorial Sales Rep.
 (Name, Title)
Paul Taliaferro, Territorial Sales Rep.
 (Printed Name and Title)
26 Hidden View Dr, Moundsville, WV, 26041
 (Address)
412-818-9291 / 304-845-2618
 (Phone Number) / (Fax Number)
ptaliaferro@advancedturf.com
 (email address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.


Advanced Turf Solutions, Inc.
 (Company)
 PAUL TALIAFERRO, Territorial Sales Rep.
 (Authorized Signature) (Representative Name, Title)
PAUL TALIAFERRO
 (Printed Name and Title of Authorized Representative)
8/26/16
 (Date)
412-818-9291 / Fax 304-845-2618
 (Phone Number) (Fax Number)

Exhibit "A" Pricing Page
 West Virginia Division of Natural Resources
 Cacapon Resort State Park - Golf Course Chemicals

Item Number	Description	Vendors submitted Manufacturer Brand for Equal-Products	Unit of Measure	Unit Cost	Quantity	Extended Price
3.1.1	Systemic Insecticide; DuPont Acelepryn or Equal. Insecticide must contain a minimum active ingredient of 18.4% Chlorantraniliprole.	No Equal Products Available <u>NO BID</u>	Gallon	<u>NO BID!</u>	6	0.00
3.1.2	Systemic Fungicide; Bayer Aliette WDG or Equal. Fungicide must contain a minimum active ingredient of 80% Aluminum Tris (O-Ethyl Phosphonate).		Pound	25.756	660	\$ 0.00 16,998. ⁷⁵
3.1.3	Broad Spectrum Fungicide; Cleary 3336F or Equal. Fungicide must contain a minimum active ingredient of 41.25% Thiophanate-Methyl(Dimethyl[4,4'-O-Phenylenebis[3-Thioallophanate]]).	ARMOR TECH TM 462 46.2% Thiophanate Methyl	Gallon	60.80	90	\$ 0.00 5,472. ⁰⁰
3.1.4	Systemic Fungicide; Syngenta Daconil Weather Stik or Equal. Fungicide must contain a minimum active ingredient of 54% Chlorothalonil (Tetrachloroisophthalonitrile).	ARMOR TECH CLT 720 54% Chlorothalonil	Gallon	42.	65	\$ 0.00 2,730. ⁰⁰
3.1.5	Systemic Fungicide; Syngenta Banner Maxx II or Equal. Fungicide must contain a minimum active ingredient of 14.3% Propiconazole.	ARMOR TECH PRZ 143 14.3% Propiconazole	Gallon	97.³⁰	14	\$ 0.00 1,362. ²⁰
3.1.6	Systemic Fungicide; Bayer Banol or Equal. Fungicide must contain a minimum active ingredient of 66.5% Propamocarb Hydrochloride.		Gallon	375.⁰⁰	30	\$ 0.00 11,250

Exhibit "A" Pricing Page
 West Virginia Division of Natural Resources
 Cacapon Resort State Park - Golf Course Chemicals

3.1.7	Systemic Fungicide; Bayer Bayleton 50 or Equal. Must contain a minimum active ingredient of 50% Triadimefon 1-(4-Chlorophenoxy)-3, 3-dimethyl-1- H -1,2,4-triazol-1-yl)-2-butanone.	ONLY SOLD BY 2 1/2 GAZ JUG 320oz minimum.	Ounce	\$ 421.075	176	2 1/2 GAZ JUG 320g \$ 0.00 1350
3.1.8	Systemic Fungicide; Bayer Chipco 26GT or Equal. Fungicide must contain a minimum active ingredient of 23.3% Iprodione 3-(3,5-dichloropheny)-N-(1-methylethyl)-2,4-dioxo-1-imidazolidinecarboxamide).	ARMORTECT IP 233	Gallon	\$ 59.09	60	0.00 3590.00
TOTAL BID AMOUNT						0.00 \$ 42,752.95
<p><i>Vendors should submit product specifications and Data sheets with their submitted bid. This information may be required before award of Purchase Order.</i></p> <p align="right">Less Item 3.1.1 \rightarrow (Not Available to Vendor)</p>						

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Advanced Turf Solutions, Inc.

Authorized Signature: Paul Selig Date: 8/26/16

State of West Virginia

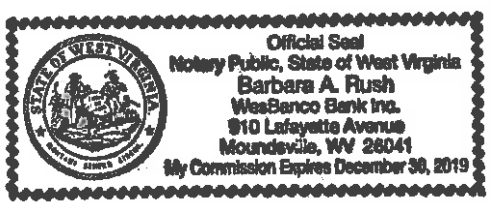
County of Marshall, to-wit:

Taken, subscribed, and sworn to before me this 26 day of August, 2016.

My Commission expires Dec 30, 2019.

AFFIX SEAL HERE

NOTARY PUBLIC Barbara A. Rush



Armor Tech[®]

IP 233

FUNGICIDE

A broad spectrum fungicide for non-residential use
on turf and ornamentals

ACTIVE INGREDIENT:

Iprodione: 3-(3,5-dichlorophenyl)-N-(1-methylethyl)-2,4-dioxo-1-imidazolidinecarboxamide* 23.3%

OTHER INGREDIENTS: 76.7%

TOTAL: 100.0%

This product contains petroleum distillates.

*Contains 2 lb. Iprodione per gallon.

**KEEP OUT OF REACH OF CHILDREN
CAUTION/PRECAUCIÓN**

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 label booklet for FIRST AID and PRECAUTIONARY STATEMENTS

For Chemical Spill, Leak, Fire, or Exposure, Call CHEMTREC (800) 424-9300.

For Medical Emergencies Only, Call (877) 325-1840.

EPA Reg. No. 228-684

Product of France or China. Formulated in the U.S.A.
with U.S. and imported ingredients.

Manufactured for NUFARM AMERICAS INC. • 11901 S. Austin Avenue • Alsip, IL 60803

United Turf Alliance

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION/PRECAUCIÓN**

Harmful if swallowed. Causes moderate eye irritation. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Avoid contact with eyes or clothing.

FIRST AID	
IF SWALLOWED:	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give any liquid to the person. • Do not give anything to an unconscious person.
IF IN EYES:	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15 to 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.
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact (877) 325-1840 for emergency medical treatment information.	
NOTE TO PHYSICIAN	
Contains petroleum distillates – vomiting may cause aspiration pneumonia.	

PERSONAL PROTECTIVE EQUIPMENT (PPE):

Mixers, loaders, others exposed to the concentrate, cleaners/repairers of equipment and applicators applying as a dip treatment must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of barrier laminate, nitrile rubber, neoprene rubber or viton
- Chemical-resistant apron
- Chemical-resistant footwear plus socks

Applicators using handheld equipment must wear:

- Coveralls over long-sleeved shirt and long pants
- Chemical-resistant gloves made of barrier laminate, nitrile rubber, neoprene rubber or viton
- Chemical-resistant footwear plus socks
- Chemical-resistant headgear for overhead exposure
- Dust/mist filtering respirator (NIOSH approved respirator with any R, P or HE filter)

Applicators using aircraft or mechanical ground equipment (groundboom, airblast, etc.) and flaggers for aerial applications must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks

Applicators using truck-mounted equipment with a handgun at the end of a hose (i.e., for commercial turfgrass or ornamental applications) and all other handlers not specified above must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of barrier laminate, nitrile rubber, neoprene rubber or viton
- Shoes plus socks

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

Discard clothing or other materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

ENGINEERING CONTROLS

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 clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This chemical can contaminate surface water through aerial and ground spray applications. Under some conditions, it may also have a high potential for runoff into surface water 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 in-field canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas overlaying tile drainage systems that drain to surface water.

This pesticide is toxic to invertebrates. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Drift or runoff from treated areas is hazardous to aquatic invertebrates in neighboring areas. Do not contaminate water when disposing of equipment washwater or rinsate.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read the entire label before using this product. Do not apply this product in a way that will contact workers or other persons, either directly or indirectly 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.

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 for ornamental uses. The restricted-entry interval for all other WPS uses is 24 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 such as barrier laminate, nitrile rubber \geq 14 mils, neoprene rubber \geq 14 mils, or viton \geq 14 mils
- Shoes and socks

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to ornamental and turf uses (golf courses, landscape and institutional areas) of this product that are NOT within the scope of the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Do not enter or allow others to enter the treated area until sprays have dried.

PRODUCT INFORMATION

This product is a broad spectrum fungicide that is applied as either a foliar spray, drench or dip and controls turfgrass diseases in non-residential sites such as golf courses, sod farms, and institutional areas where fine turf is grown, as well as a wide range of ornamental flowering and foliage plants in field, landscape, nurseries, greenhouses, and conifer nursery sites. This product is effective in controlling the following diseases:

Spring, Summer, and Fall Turf Diseases:

- Anthracnose (suppression only)
- Brown Patch
- Corticum Red Thread
- Curvularia
- Dollar Spot
- Fusarium Blight
- Large Patch
- Leaf Spots like *Helminthosporium* Leaf Spot caused by *Dreschlera* spp. Pathogens
- Necrotic Ring Spot

Winter Turf Diseases:

- Fusarium patch (Pink snow mold)
- Gray snow mold

Ornamental and Nursery Diseases:

- Aerial web blight
- Alternaria leaf blight
- Alternaria leaf spot
- Blossom blight
- Botrytis blight
- Botrytis storage rot
- Cylindrocladium blight and wilt
- Daffodil leaf scorch
- Fusarium corm rot
- Fusarium leaf spot
- Helminthosporium leaf spot
- Ink spot
- Ray blight
- Rhizoctonia stem and root rot
- Tulip fire

USE PRECAUTIONS AND RESTRICTIONS

- For best results, be sure to follow all the precautions, limitations and instructions in this label.
- Use of this product at residential sites is prohibited.
- Except for use on golf courses, if applying this product adjacent to a water body such as a lake, reservoir, river, permanent stream, marsh or natural pond, estuary, or commercial fish pond, there must be at least a 25-foot vegetative buffer strip between the water body and the point of application.
- For golf courses only, do not apply to turf cut higher than 1" on golf holes where water bodies are present.
- Do not apply this product when the wind direction is toward aquatic areas.

PRODUCT APPLICATION GUIDELINES

- Apply the rates indicated in the following sections of the label in 0.5 to 10 gallons of water per 1,000 square feet.
- Do not drench the foliage to the point of runoff.
- Product breakdown could occur if the spray mixture is allowed to stand for more than 12 hours.
- Maintain agitation during spray operations.
- Always apply using a properly calibrated sprayer.

TURF

APPLICATION INSTRUCTIONS FOR TURF:

Unless otherwise noted, make applications when the disease first appears or when conditions favor disease development.

Under severe conditions, use the higher rate and/or shorter interval of applications for all diseases. When disease pressure is light to moderate, use the lower rates and longer intervals.

USE PRECAUTIONS:

- DO NOT apply more than 35 fl. oz. of this product per 1,000 square feet per year (24 lb. a.i. per acre).
- DO NOT make more than 6 applications to a single site per year.
- DO NOT mix with any sticker, extender, or wetting agent.
- DO NOT mow or irrigate treated areas until the foliage is completely dry. Wait 24 hours following treatment.
- DO NOT graze animals on treated turf, and do not feed clippings from treated turf to livestock or poultry.

TARGET PEST	RATE (fl. oz./1,000 sq. ft.)	APPLICATION INTERVAL
Dollar spot (<i>Lanzia</i> spp. and <i>Moellerodiscus</i> spp.) Brown patch (<i>Rhizoctonia solani</i>) Leaf spot such as helminthosporium Leaf spot caused by Drechslera spp.	3 to 4 For dollar spot control on fairways, use 2 to 4	Greens and Tees: Repeat at 14- to 21-day intervals as long as required. Fairways and Other Turf Areas: Repeat at 14- to 28-day intervals as long as required.
Large patch † (<i>Rhizoctonia solani</i>)	4	Make first application in fall when conditions are favorable for disease development but no symptoms are visible. Repeat applications every 14 to 21 days in spring as needed.
Fusarium blight (<i>Fusarium</i> spp.) Necrotic ring spot † (<i>Leptosphaeria korrae</i>)	8	Use only preventative foliar applications when conditions first become favorable for disease development. Make additional applications at 28-day intervals as necessary.
Fusarium patch (<i>Microdochium nivalis</i>) [Pacific Northwest Only – West of the Cascade Mountains]	4 to 8	Repeat at 14- to 21-day intervals as long as required.
Gray snow mold (<i>Typhula</i> spp.) Pink snow mold (<i>Fusarium nivale</i>)	4 to 8 (See tank mixes for additional information)	Make one application before first permanent snow cover and a second during a mid-winter thaw.
Corticium red thread (<i>Laetisaria fuciformis</i>)	4	Apply every 14 days as required for prevention.
Curvularia (<i>Curvularia</i> spp.) on Bermudagrass only	4 to 8	Apply every 14 days as required for prevention.
Anthracnose (<i>Colletotrichum</i>) NOTE: suppression only	4 to 8	Combine this product with appropriately labeled and registered trifloxystrobin or fosetyl-al products or other anthracnose control fungicides.
Pythium blight	See tank mixes below	

†Not registered for use in California

TANK MIXTURES FOR TURF APPLICATIONS

To expand the spectrum of pests controlled, tank mix this product with most commonly used fungicides containing flutolanil, trifloxystrobin, and azoxystrobin. When tank mixing products, be sure to follow the most restrictive instructions. Do not tank mix with any product that contains a prohibition on tank mixing.

Broad Spectrum Disease Control and Resistance Management:

Tank mixing this product with Nufarm T-Methyl SPC 4.5 F Fungicide provides effective, broad spectrum turf disease control and also serves as a useful tank mixture in the resistance management program required for other resistance sensitive fungicides.

Disease Pressure	Product Rates	
	Nufarm Iprodione SPC Fungicide	Nufarm T-Methyl SPC 4.5 F Fungicide
Low to Medium	3 fl. oz./1,000 ft. ²	1.0 fl. oz./1,000 ft. ²
High	3 fl. oz./1,000 ft. ²	2.0 fl. oz./1,000 ft. ²

Summer Stress Complex/Summer Decline:

Mix 2 to 4 oz. of this product with 4 to 8 oz. of an appropriately labeled and registered phosphorous acid containing product per 1,000 square feet.

Pythium Blight:

Pythium blight will be controlled by a tank mix of this product and a phosphorous acid or propamocarb hydrochloride fungicide. If using a tank mixture, follow label directions for the use of that product and apply at the rate specified for control of the target disease organism.

Gray Snow Mold:

In areas where continuous snow cover occurs, use 4 to 8 fl. oz. of this product per 1,000 sq. ft. tank mixed with an appropriately labeled and registered chlorothalonil or pentachloronitrobenzene (PCNB) product at the labeled rate.

Make applications in the fall before snow cover occurs and use the higher rates listed if the turf remains frozen prior to snow cover. Apply with 1 to 5 gallons of spray solution per 1,000 square feet. For best results, reapply if loss of snow cover occurs during a winter thaw.

ORNAMENTALS

Not for use in residential areas.

For Use on Field, Landscape, Nursery, and Greenhouse Ornamentals and in Conifer Nurseries

This product is a broad spectrum fungicide that may be applied safely to a wide range of ornamental flowering and foliage plants, either as a foliar spray, drench or dip. Read specific instructions carefully and use only as directed.

The ornamentals listed below have been tested and found to be tolerant to this product. As it is not possible to test every species or variety of ornamental plant for tolerance, the user should test for phytotoxic responses in plants not listed in this label prior to widespread application.

This product has been tested on the following ornamentals:

Ageratum	Ajuga	Almond (ornamental)	Alyssum
Andromeda	Aphelandra	Artemisia	Aster
Azalea	Boxwood	Cactus	Calendula
Carnation	Cherry (ornamental)	Chrysanthemum	Cineraria
Cistena Plum	Coleus	Columbine	Coral Bells (Heuchera)
Crape Myrtle	Crassula	Croton	Cyclamen
Daffodilis	Dahlia	Delphinium	Deutzia
Dianthus	Dieffenbachia	Dizygotheca	Dogwood
Dracena	English Ivy	Episcia	Euonymous
Ficus	Forsythia	Gazania	Geranium
Gladiolus	Gloxinia	Gypsophila	Hawthorn
Holly	Hoya	Hydrangea	Impatiens
Iris	Juniper	Kalanchoe	Lilies
Lipstick vine	Marigold	Monarda (Bee Balm)	Pachysandra
Palm	Pansy	Peach (ornamental)	Peperomia
Periwinkle	Philodendron	Phlox	Pilea
Pine	Pitosporum	Plum (ornamental)	Poinsettia
Poppy	Pothos	Primrose	Privet
Protea	Pyracantha	Rhododendron	Rose
Rose Tree of China	Salvia	Schefflera	Snapdragon
Statice	Tree Ivy	Tulip	Viburnum
Violet	Zinnia		

NOTE: DO NOT apply this product to Peace Lily or White Anthurium (*Spathiphyllum*).

Use the following table to determine the diseases controlled and the application method to use:

Disease	Can Be Applied To	Foliar Spray	Drench	Dip
Aerial web blight	All	✓		
Alternaria leaf blight	All	✓		
Alternaria leaf spot	All	✓		
Botrytis blight	All	✓		
Fusarium leaf spot	All	✓		
Helminthosporium leaf spot	All	✓		
Rhizoctonia stem and root rot	All except Impatiens and Pothos		✓	
Ink spot	Iris	✓		
Tulip fire	Tulip	✓		
Alternaria leaf blight	Zinnia	✓		
Ray blight	Chrysanthemum	✓		
Fusarium corm rot	Gladiolus			✓
Daffodil leaf scorch	Daffodils	✓		
Blossom blight	Cistena Plum/ Ornamental Plum	✓		
Botrytis storage rot	Rose			✓
Cylindrocladium blight and wilt	Azalea and Rhododendron			✓

FOLIAR SPRAY APPLICATIONS

Apply when conditions are favorable for disease development using the following instructions:

- Application Rate: 1.0 to 2.5 quarts of product per acre
For severe pest pressure, use the highest specified rates.
For light to moderate pest pressure, use the lower rates listed.
- Application Interval: 7 to 14 days
For severe pest pressure, use the shortest application intervals.
For light to moderate pest pressure, use the longer application intervals.
- Application Instructions: Spray plants ensuring complete coverage.
- Use Precautions: DO NOT make more than 4 applications per crop per year.

DRENCH APPLICATIONS

To control *Rhizoctonia*, apply this product as a drench at the seeding and/or transplanting stage using the following instructions:

- Application Rate: 13 fl. oz. per 100 gallons.
- Application Interval: 14 days
- Application Instructions: Apply using 1 to 2 pints of solution per square foot.
For severe disease pressure use the higher rates.
For light to moderate disease pressure use the lower rates.
- Use Precautions: DO NOT apply more than 35 fl. oz./1,000 sq. ft. per year (24 lb. a.i. per acre).
DO NOT make more than 6 applications per year.
DO NOT use this product as a drench on Impatiens and Pothos.

DIP APPLICATIONS

Refer to the following table for use of this product as a dip to control Botrytis Storage Rot, *Cylindrocladium* Blight and Wilt, and Fusarium Corn Rot in the following plants:

Plant Species	Disease	Application Rate (Quarts Product/100 Gals. Water)	Dip Duration	Instructions
Rose	Botrytis Storage Rot (<i>Botrytis</i> sp.)	1.0	5 minutes	Dip bare root roses prior to cold storage.
Azalea and Rhododendron	<i>Cylindrocladium</i> Blight and Wilt (<i>Cylindrocladium scorparium</i>)	1.0	5 minutes	Dip cuttings prior to planting.
Gladiolus	Fusarium Corn Rot (<i>Fusarium oxysporum</i>)	2.0	5 minutes	Dip corms prior to storage.

TANK MIXTURES

In order to broaden the spectrum of control, use this product with most commonly used fungicides. For control of diseases caused by *Pythium* and *Phytophthora* spp., tank mix with a phosphorous acid product such as PHOSTROL[®] Agricultural Fungicide.

Read the labels of all tank mix partners for specific application rates for the target disease organism and be sure to follow the most restrictive instructions. Do not tank mix with any product that contains a prohibition on tank mixing.

DIRECTIONS FOR USE THROUGH SPRINKLER IRRIGATION SYSTEMS

Apply this product using a center pivot irrigation system using the following instructions:

- System Preparation:** Be sure all pesticide residues, scale and other foreign materials are cleaned from the chemical tank and injector system. Flush with clean water prior to use.
- Prepare a tank mix of this product by filling the tank to 1/2 to 3/4 of the final volume with water and begin agitation. Add the specified amount of this product and the remaining water until the desired volume is reached.
- Application Rate:** Use the specified dosage per acre per 1 to 4 gallons of water.
- Application Instructions:** Set the sprinkler system to deliver 0.1 to 0.3 inch of water per acre.
- Using a positive displacement pump, this product mixture should be injected into the main line ahead of a right angle turn to ensure adequate mixing.
- Use Precautions:** **Application of this product using a sprinkler system is prohibited in the state of California.**
- Apply this product using only a center pivot irrigation system. Do not apply this product through any other type of irrigation system.
- To prevent this product from being washed off the crop, do not irrigate the treated area for 24 hours after making the application.

GENERAL PRECAUTIONS FOR APPLICATIONS THROUGH SPRINKLER IRRIGATION SYSTEMS

Maintain continuous agitation in mix tank during mixing and application to assure a uniform suspension. Greater accuracy in calibration and distribution will be achieved by injecting a larger volume of a more dilute solution per unit time. The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow. 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 pesticide injection pipeline must also contain a functional, normally closed solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

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. 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.

Do not apply when wind speed favors drift, when system connection or fittings leak, when nozzles do not provide uniform distribution or when lines containing the product must be dismantled and drained.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop is a result of non-uniform distribution of treated water.

Allow sufficient time for pesticide to be flushed through all lines and all nozzles before turning off irrigation water. A person knowledgeable of the chemigation system and responsible for its operation shall shut the system down and make necessary adjustments should the need arise.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the label-prescribed safety devices for public water supplies are in place.

SPRAY DRIFT

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

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 to applications using dry formulations.

1. The distance of the outermost nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
2. Nozzles must always point backwards parallel with the airstream and never be pointed downward 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** section below.

Aerial Drift Reduction Advisory Information:

(This section is advisory in nature and does not supersede 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 environmental conditions (See "Wind", "Temperature and Humidity", and "Temperature Inversions").

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 specified 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 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.

Boom Length

For some use patterns, reducing the effective boom length to less than 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 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces 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 up 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 to 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.

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, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store in original container only.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may 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 $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

WARRANTY DISCLAIMER

The directions for use of this product must be followed carefully. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, (1) THE GOODS DELIVERED TO YOU ARE FURNISHED "AS IS" BY MANUFACTURER OR SELLER AND (2) MANUFACTURER AND SELLER MAKE NO WARRANTIES, GUARANTEES, OR REPRESENTATIONS OF ANY KIND TO BUYER OR USER, EITHER EXPRESS OR IMPLIED, OR BY USAGE OF TRADE, STATUTORY OR OTHERWISE, WITH REGARD TO THE PRODUCT SOLD, INCLUDING, BUT NOT LIMITED TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, USE, OR ELIGIBILITY OF THE PRODUCT FOR ANY PARTICULAR TRADE USAGE. UNINTENDED CONSEQUENCES, INCLUDING BUT NOT LIMITED TO INEFFECTIVENESS, MAY RESULT BECAUSE OF SUCH FACTORS AS THE PRESENCE OR ABSENCE OF OTHER MATERIALS USED IN COMBINATION WITH THE GOODS. OR THE MANNER OF USE OR APPLICATION, INCLUDING WEATHER, ALL OF WHICH ARE BEYOND THE CONTROL OF MANUFACTURER OR SELLER AND ASSUMED BY BUYER OR USER. THIS WRITING CONTAINS ALL OF THE REPRESENTATIONS AND AGREEMENTS BETWEEN BUYER, MANUFACTURER AND SELLER, AND NO PERSON OR AGENT OF MANUFACTURER OR SELLER HAS ANY AUTHORITY TO MAKE ANY REPRESENTATION OR WARRANTY OR AGREEMENT RELATING IN ANY WAY TO THESE GOODS.

LIMITATION OF LIABILITY

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO EVENT SHALL MANUFACTURER OR SELLER BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, OR FOR DAMAGES IN THEIR NATURE OF PENALTIES RELATING TO THE GOODS SOLD, INCLUDING USE, APPLICATION, HANDLING, AND DISPOSAL. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, MANUFACTURER OR SELLER SHALL NOT BE LIABLE TO BUYER OR USER BY WAY OF INDEMNIFICATION TO BUYER OR TO CUSTOMERS OF BUYER, IF ANY, OR FOR ANY DAMAGES OR SUMS OF MONEY, CLAIMS OR DEMANDS WHATSOEVER, RESULTING FROM OR BY REASON OF, OR ARISING OUT OF THE MISUSE, OR FAILURE TO FOLLOW LABEL WARNINGS OR INSTRUCTIONS FOR USE, OF THE GOODS SOLD BY MANUFACTURER OR SELLER TO BUYER. ALL SUCH RISKS SHALL BE ASSUMED BY THE BUYER, USER, OR ITS CUSTOMERS. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BUYER'S OR USER'S EXCLUSIVE REMEDY, AND MANUFACTURER'S OR SELLER'S TOTAL LIABILITY SHALL BE FOR DAMAGES NOT EXCEEDING THE COST OF THE PRODUCT.

If you do not agree with or do not accept any of the directions for use, the warranty disclaimers, or limitations of liability, do not use the product, and return it unopened to the Seller, and the purchase price will be refunded.

(RV100412)

ArmorTech is a trademark of United Turf Alliance

Phostrol is a trademark of Nufarm Americas Inc.

All other trademarks that appear on this label which are not owned by Nufarm Americas Inc. or its subsidiaries are the property of their respective owners.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: ArmorTech IP 233 Fungicide
EPA Reg. No.: 228-684
Product Type: Fungicide
Company Name: Nufarm Inc.
11901 S. Austin Avenue
Alsip, IL 60803
1-800-345-3330

Telephone Numbers: For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident,
Call CHEMTREC Day or Night: 1-800-424-9300
For Medical Emergencies Only, Call 1-877-325-1840

This product is an EPA FIFRA registered pesticide. Some classifications on this SDS are not exactly the same as on the FIFRA label. Certain sections are superseded by federal law governed by EPA for a registered pesticide. Please see Section 15. REGULATORY INFORMATION for explanation.

2. HAZARDS IDENTIFICATION

PHYSICAL HAZARDS:
Not Hazardous

HEALTH HAZARDS:
Skin irritation Category 2
Specific target organ toxicity – Repeat exposure Category 2

ENVIRONMENTAL HAZARDS:
Hazardous to aquatic environment, acute Category 2
Hazardous to aquatic environment, chronic Category 2

SIGNAL WORD:
WARNING

HAZARD STATEMENTS:
Harmful if swallowed or inhaled. Causes skin irritation. May cause an allergic skin reaction. Causes eye irritation. May cause damage to organs (liver, adrenal, ovary and/or testes) through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects.



PRECAUTIONARY STATEMENTS:
Wash hands and exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. If swallowed: Call a poison center/doctor if you feel unwell. Rinse mouth. Dispose of contents/container in accordance with local/regional/national/international regulations.

Avoid breathing mists/vapors/spray. Use only outdoors or in well-ventilated area. If inhaled: Remove victim to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.

SAFETY DATA SHEET

ArmorTech IP 233 Fungicide

Wear protective gloves. If on skin: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Avoid release to the environment. Collect spillage.

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS NO.	% BY WEIGHT
Iprodione	36734-19-7	22.6 – 24.0
Propylene Glycol	57-55-6	0.7 – 0.8
Other Ingredients	Trade Secret	Trade Secret

Synonyms: Mixture containing Iprodione; 3-(3,5-dichlorophenyl)-N-(1-methylethyl)-2,4-dioxo-1-imidazolidinecarboxamide

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

4. FIRST AID MEASURES

If Swallowed: Call a poison control center or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give any liquid to the person. Do not give anything to an unconscious person.

If in Eyes: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If on Skin or Clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

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

Most important symptoms/effects, acute and delayed: Skin exposure may cause mild irritation.

Indication of immediate medical attention and special treatment if needed, if necessary: None expected.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Use extinguishing media suitable for surrounding materials. Dry chemical, carbon dioxide, foam, water spray or fog.

Special Fire Fighting Procedures: Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full fire-fighting turn out gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.

Unusual Fire and Explosion Hazards: If water is used to fight fire, contain runoff, using dikes to prevent contamination of water supplies. Dispose of fire control water later.

Hazardous Decomposition Materials (Under Fire Conditions): May produce gases such as oxides of carbon and nitrogen.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

Environmental Precautions: Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.

Methods for Containment: Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.

Methods for Cleanup and Disposal: Avoid creation of dusty conditions. Scrape up and place in appropriate closed container. Wash entire spill area with a detergent slurry, absorb and sweep into container for disposal. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.

Other Information: Large spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

7. HANDLING AND STORAGE

HANDLING: Avoid contact with eyes or clothing. Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing/Personal Protective Equipment (PPE) immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove Personal Protective Equipment (PPE) immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

STORAGE: Store in original container only. Do not contaminate water, food, or feed by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:

Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation.

Eye/Face Protection: Not normally required. To avoid contact with eyes, wear chemical goggles or shielded safety glasses. An emergency eyewash or water supply should be readily accessible to the work area.

Skin Protection: Mixers, loaders and others exposed to the concentrate, cleaners/repairers of equipment and applicators applying as a dip treatment must wear long-sleeved shirt, long pants, chemical-resistant footwear plus socks, chemical-resistant gloves and chemical-resistant apron.

Applicators using handheld equipment must wear coveralls over long-sleeve shirt and long pants, chemical-resistant footwear plus socks, chemical-resistant gloves, chemical-resistant headgear for overhead exposure.

Applicators using aircraft or mechanical ground equipment (groundboom, airblast, etc.) and flaggers for aerial applications must wear long-sleeved shirt, long pants, shoes and socks.

Applicators using truck-mounted equipment with a handgun at the end of the hose (i.e. for commercial turfgrass or ornamental applications) and all the other handlers not specified above must wear long-sleeved shirt, long pants, shoes, socks and chemical-resistant gloves.

An emergency shower or water supply should be readily accessible to the work area.

Respiratory Protection: Not normally required. If vapors or mists exceed acceptable levels, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for use against pesticides.

General Hygiene Considerations: Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored; 2) wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

Exposure Guidelines:

Component	OSHA		ACGIH		Unit
	TWA	STEL	TWA	STEL	
Iprodione	NE	NE	NE	NE	
Propylene Glycol	10 (WEEL)	NE	NE	NE	mg/m ³
Other Ingredients	NE	NE	NE	NE	

NE = Not Established WEEL = Workplace Environmental Exposure Levels

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Off-white opaque liquid
Odor:	No data available
Odor threshold:	No data available
pH:	5.44 (1% w/w dilution in DIW)
Melting point/freezing point:	No data available
Initial boiling point and boiling range	No data available
Flash point:	No data available
Evaporation rate:	No data available
Flammability (solid, gas):	No data available
Upper/lower flammability or explosive limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
Relative density:	1.034 g/mL (20° C)
Solubility(ies):	No data available
Partition coefficient: n-octanol/water:	No data available
Autoignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	918.086 cSt (20° C) and 479.945 cSt (40° C)

Note: Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

10. STABILITY AND REACTIVITY

Reactivity: Not reactive
Chemical Stability: This material is stable under normal handling and storage conditions
Possibility of Hazardous Reactions: Hazardous polymerization will not occur.
Conditions to Avoid: Excessive heat. Do not store near heat or flame.
Incompatible Materials: Strong oxidizing agents: bases and acids.
Hazardous Decomposition Products: Under fire conditions may produce oxides of carbon and nitrogen.

11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Eye contact, Skin contact
Symptoms of Exposure:
Eye Contact: Mildly irritating based on toxicity studies.
Skin Contact: Minimally toxic and slightly irritating based on toxicity studies.
Ingestion: Slightly toxic if ingested based on toxicity studies.
Inhalation: Low inhalation toxicity based on toxicity studies.
Delayed, immediate and chronic effects of exposure: None reported.

Toxicological Data:

Data from laboratory studies conducted are summarized below:

Oral: Rat LD₅₀: >3,129 mg/kg (females)

Dermal: Rat LD₅₀: >5,000 mg/kg

Inhalation: Rat 4-hr LC₅₀: >2.09 mg/L (no mortalities at highest dose tested)

Eye Irritation: Rabbit: Mildly irritating (MMTS=12.0)

Skin Irritation: Rabbit: Slightly irritating (PDII=0.6)

Skin Sensitization: Not a contact sensitizer in guinea pigs following repeated skin exposure.

Subchronic (Target Organ) Effects: Repeated overexposure to iprodione may cause effects in the liver, adrenal, ovary and/or testes. Overexposure to propylene glycol has been associated with kidney toxicity, liver toxicity (animals) and lactic acidosis. Very high dose acute exposure may result in CNS and cardiac effects.

Carcinogenicity / Chronic Health Effects: Prolonged overexposure to iprodione can cause effects to liver, kidneys, and reproductive system. Iprodione produced benign testicular tumors in rats and benign

liver and ovary tumors in mice when tested at a maximum tolerated dose. Overexposure to propylene glycol has been associated with kidney toxicity, liver toxicity (animals) and lactic acidosis.

Reproductive Toxicity: Iprodione did not cause reproductive toxicity in multi-generation studies in rats. In the mouse, propylene glycol was not a reproductive toxicant.

Developmental Toxicity: Iprodione was not a primary developmental toxicant as only minor delays or variations in fetal development were observed at doses that caused maternal toxicity. In a series of animal studies, propylene glycol was not a developmental toxicant.

Genotoxicity: For iprodione, there is no evidence of effects during *in-vitro* or *in-vivo* studies. Propylene glycol was consistently nonmutagenic.

Assessment Carcinogenicity: None listed with ACGIH, IARC, NTP or OSHA.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Data on Iprodione Technical:

96-hour LC ₅₀ Bluegill:	3.7 ppm	48-hour Honey Bee Contact LD ₅₀ :	>120 µg/bee
96-hour LC ₅₀ Rainbow Trout:	4.1 ppm	Bobwhite Quail 8-day Dietary LC ₅₀ :	>5,620 ppm
48-hour EC ₅₀ Daphnia:	0.24 ppm	Bobwhite Quail Oral LD ₅₀ :	>2,000 mg/kg
96-hour EC ₅₀ Eastern Oyster:	2.3 ppm	Mallard Duck 8-day Dietary LC ₅₀ :	>5,620 ppm
96-hour EC ₅₀ Mysid Shrimp:	0.68 ppm		

Environmental Fate:

The major routes of dissipation for iprodione are hydrolysis in neutral and alkaline environments and microbial degradation under both aerobic and anaerobic conditions. Soil half-lives range from 7 to >60 days and the average soil half-life is 14 days. Degradation rates vary with soil acidity, soil clay contents and history of the soil fungicide treatment. Iprodione is slightly soluble and moderately to well sorbed by most soils.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide is a violation of Federal law.

Container Handling and Disposal:

Nonrefillable Containers 5 Gallons or Less: 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 ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Nonrefillable containers larger than 5 Gallons: Nonrefillable container. Do not reuse or refill this container. Triple rinse or pressure 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.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10

seconds after the flow begins to drip. Offer for recycling if available. If recycling or reconditioning is not available, puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration. Do not burn unless allowed by state and local ordinance. If burned stay out of smoke.

Refillable containers: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

14. TRANSPORTATION INFORMATION

DOT

< 119 gallons per completed package

Non Regulated

≥ 119 gallons per completed package

UN 3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (IPRODIONE), 9, III,
MARINE POLLUTANT

IMDG

UN 3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (IPRODIONE), 9, III,
MARINE POLLUTANT

IATA

Non Regulated

15. REGULATORY INFORMATION

EPA FIFRA INFORMATION

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

CAUTION. Harmful if swallowed. Causes moderate eye irritation. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Avoid contact with eyes or clothing.

U.S. FEDERAL REGULATIONS

TSCA Inventory: This product is exempted from TSCA because it is solely for FIFRA regulated use.

SARA Hazard Notification/Reporting:

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370):

Immediate and Delayed

Section 313 Toxic Chemical(s):

None

Reportable Quantity (RQ) under U.S. CERCLA:

None

RCRA Waste Code:

Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

State Information:

Other state regulations may apply. Check individual state requirements.

California Proposition 65: None Listed.

16. OTHER INFORMATION

National Fire Protection Association (NFPA) Hazard Rating:

Rating for this product: Health: 1 Flammability: 1 Reactivity: 0

Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of Federal law to use a pesticide product in any manner not prescribed on the EPA-accepted label.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Nufarm Americas Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Nufarm Americas Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS AND ALL SUCH WARRANTIES ARE HEREBY SPECIFICALLY DISCLAIMED.

Date of Issue: April 3, 2015

Supersedes: June 4, 2014

Armor Tech[®]

PPZ 143 MC

FUNGICIDE

**Broad-spectrum and systemic disease control
for turf and ornamentals**

FIRST AID	
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.
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 by mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
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 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 do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
<p>Have the product container or label with you when calling a poison control center or doctor or going for treatment. For medical emergencies involving this product, call Poison Control 1-800-222-1222 or National Pesticide Information Center 1-800-858-7378.</p>	
<p>NOTE TO PHYSICIAN If ingested, induce emesis or lavage stomach. Treat symptomatically.</p>	

ACTIVE INGREDIENT:	% BY WT.
Propiconazole	14.3%
OTHER INGREDIENTS:	85.7%
TOTAL:	100.0%

Contains 1.3 lbs. active ingredient per gallon.

EPA Reg. No. 86064-4
EPA Est. No. 42750-MO-001

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 this label, find someone to explain it to you in detail.)

**See inside label booklet for additional
Precautionary Statements and Directions for Use
including Storage and Disposal instructions.**

Manufactured for:
United Turf Alliance, LLC
8014 Cumming Highway, Suite 403-282
Canton, GA 30115

NET CONTENTS: 2.5 GALLONS (9.46 liters)



United Turf Alliance

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS WARNING/AVISO

Causes substantial but temporary eye injury. **Do not** get in eyes or on clothing. Harmful if swallowed, inhaled, or absorbed through skin. Avoid contact with eyes, skin or clothing. Avoid breathing vapor or spray mist. Wear goggles or face shield. Wear rubber gloves and a long-sleeved shirt when mixing, handling and/or applying the product. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or using tobacco. Remove and wash contaminated clothing before reuse.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemically resistant to this product are listed below. If you want more options, follow the instructions for Category C on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear.

- Long-sleeved shirt and long pants
- Chemical-resistant gloves such as barrier laminate, butyl rubber \geq 14 mils, nitrile rubber \geq 14 mils, neoprene rubber \geq 14 mils, polyvinyl chloride (PVC) \geq 14 mils, or Viton \geq 14 mils
- Shoes plus socks
- Protective eyewear

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 exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

ENGINEERING CONTROLS STATEMENT

When handlers use closed systems or enclosed cabs 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 clothing immediately, if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish. **Do not** apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. **Do not** contaminate water when disposing of equipment washwater.

PHYSICAL OR CHEMICAL HAZARDS

Do not use or store near heat or open flame.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. **Do not** apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Note: **Do not** apply more than 5.4 gals. of ArmorTech PPZ 143 MC per acre per calendar year.

Failure to follow the directions for use and precautions on this label may result in plant injury or poor disease control.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard (WPS) 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), notification to workers, 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 24 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 such as barrier laminate, butyl rubber \geq 14 mils, nitrile rubber \geq 14 mils, neoprene rubber \geq 14 mils, polyvinyl chloride (PVC) \geq 14 mils, or Viton \geq 14 mils
- Shoes plus socks
- Protective eyewear

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

DO NOT enter treated areas without protective clothing until sprays have dried.

GENERAL INFORMATION

ArmorTech PPZ 143 MC is a systemic fungicide for use on turfgrasses for the control of:

Anthraxnose (*Colletotrichum graminicola*)
Brown patch (*Rhizoctonia solani*)
Dollar spot (*Scierotinia homoeocarpa*)
Fusarium patch (*Fusarium nivale*)
Gray leafspot (*Pyricularia grisea*)
Gray snowmold (*Typhula* spp.)
Leafspot (*Bipolaris* spp., *Drechslera* spp.)
Necrotic ring spot (*Leptosphaeria korrae*)
Pink patch (*Limonomyces roseipellis*)
Pink snowmold (*Microdochium nivale*)

Powdery mildew (*Erysiphe graminis*)
Red thread (*Laetisaria fuciformis*)
Rust (*Puccinia graminis*)
Spring dead spot (*Leptosphaeria korrae*, *Leptosphaeria narmari*,
Ophiosphaerella herpotricha, *Gaeumannomyces graminis*)
Stripe smut (*Ustilago striiformis* and *Urocystis agropyri*)
Summer patch (*Magnaporthe poae*)
Take-all patch (*Gaeumannomyces graminis*)
Yellow patch (*Rhizoctonia cerealis*)
Zoysia patch (*Rhizoctonia solani*)

ArmorTech PPZ 143 MC also controls numerous diseases on ornamentals and other landscape and nursery plantings such as powdery mildews, rusts, leafspots, scabs, and blights. Refer to the appropriate section of this label for specified diseases and plants.

DO NOT apply this product through any type of irrigation system.

TANK MIXES

ArmorTech PPZ 143 MC can be tank mixed with other fungicides for broader spectrum control. ArmorTech PPZ 143 MC is also compatible with numerous herbicides and insecticides. Check compatibility before tank mixing. Add Unite[®] (3 pts./100 gals.) to tank mixes which are incompatible. Follow the directions under "Mixing Instructions" for tank mixes. Observe all directions, precautions, and limitations on labeling of all products used in tank mixes. Tank mixtures or other applications of products referenced on this label are permitted only in those states in which the referenced products are registered.

MIXING INSTRUCTIONS

Fill the spray tank 1/2 to 3/4 full with water. Add the proper amount of ArmorTech PPZ 143 MC, then add the remaining water. Provide sufficient agitation during mixing and application to maintain a uniform emulsion.

If ArmorTech PPZ 143 MC is tank mixed with other products, use the following sequence:

1. Always check the compatibility of the tank mix using a jar test with proportionate amounts of ArmorTech PPZ 143 MC, other chemicals to be used, and the water, before mixing in the spray tank.
2. Provide sufficient jet or mechanical agitation during filling and application to keep the tank mix uniformly suspended.
3. Fill tank at least 1/2 full of clean water.
4. Add wettable powders to the tank first, allowing them to completely suspend in the tank before proceeding. Premixing the product in water before adding to the tank will hasten the process.
5. Add flowables or suspensions next.
6. Add the proper amount of ArmorTech PPZ 143 MC.
7. Add emulsifiable concentrates last.
8. **Do not** leave tank mix combinations in the spray tank for prolonged periods without agitation. Mix and apply them the same day.

TURFGRASS AND DICHONDRA DISEASE CONTROL

1. Use ArmorTech PPZ 143 MC in a preventative disease control program.
2. Apply after mowing OR allow sprayed area to completely dry before mowing.
3. For control of soil-borne diseases, ArmorTech PPZ 143 MC can be watered-in after application.
4. For control of foliar diseases, allow sprayed area to completely dry before irrigation.
5. For optimum turf quality and disease control, use ArmorTech PPZ 143 MC in conjunction with turf management practices that promote good plant health and optimum disease control.
6. Proper diagnosis of the organism causing the disease is important prior to using any fungicide. Use of diagnostic kits or other means of identification of the disease organism is essential to determine the best control measures.
7. Apply in sufficient water to ensure thorough coverage.
8. Under conditions optimum for high disease pressure, use the higher rate and the shorter interval.
9. Evaluate spray additives prior to use. Label directions are based on data obtained with no additives.
10. **Do not** apply more than 16 fl. oz./1,000 sq. ft. per calendar year.

Important: Bermudagrass can be sensitive to ArmorTech PPZ 143 MC. **Do not** exceed 4 fl. oz./1,000 sq. ft. every 30 days on any variety of Bermudagrass. In Florida, **do not** apply ArmorTech PPZ 143 MC to Bermudagrass golf course greens when temperatures exceed 90°F.

Note: **Do not** feed clippings from treated areas to livestock or poultry. **Do not** graze animals on treated areas.

TURFGRASS - SPECIFIC DISEASES, RATES, AND APPLICATION TIMING

DISEASE	Fl. Oz. Per 1,000 sq. ft.	Fl. Oz. Per Acre	Application Interval/Timing	Instructions
Dollar Spot (<i>Sclerotinia homoeocarpa</i>)	0.5	22	7 days	Apply when conditions are favorable for disease development.
	0.5	22	14 days	Tank mix with low label rate of one of the following fungicides: ArmorTech CLT 825 ArmorTech CLT 720
	1	44	21-28 days	Tank mix with low label rate of one of the following fungicides: ArmorTech CLT 825 ArmorTech CLT 720 Iprodione-based products
	1-2	44-88	14-28 days	If using the 1-2 fl. oz./1,000 sq. ft. rate without tank mixing, make no more than 3 consecutive applications for dollar spot control before rotating to an alternate EPA-registered fungicide having a different mode of action.
Anthracnose (<i>Colletotrichum graminicola</i>)	1-2	44-88	14-28 days	Apply when conditions are favorable for disease development. Use higher rates of ArmorTech PPZ 143 MC and shorter intervals when disease pressure is high. For broad-spectrum control, tank mix with a registered contact fungicide at the label rate. If disease is present, mix 2 fl. oz. of ArmorTech PPZ 143 MC per 1,000 sq. ft. with the label rate of the above-mentioned contact fungicides.
Brown patch (<i>Rhizoctonia solani</i>)	1-2	44-88	14-21 days	Tank mix with a registered contact fungicide labeled for brown patch control at the label rate. Begin applications in May or June before the disease is present. Use the higher rates of ArmorTech PPZ 143 MC and shorter intervals under conditions of high temperatures and high humidity.
Powdery Mildew (<i>Erysiphe graminis</i>) Rust (<i>Puccinia graminis</i>)	1-2	44-88	14-28 days	Make applications when conditions are favorable for disease development. If disease is present, use 2 fl. oz. of ArmorTech PPZ 143 MC per 1,000 sq. ft.
Pink Patch (<i>Limonomyces roseipellis</i>) Red Thread (<i>Laetisaria fuciformis</i>)	2	88	14-21 days	Apply when conditions are favorable for disease development.
Stripe Smut (<i>Ustilago striiformis</i>) (<i>Urocystis agropyri</i>)	1-2	44-88	Fall or Spring	Apply once in the fall after grass becomes dormant or in the early spring before grass starts to grow.
Gray Leafspot (<i>Pyricularia grisea</i>)	1-2	44-88	14 days	Make applications when conditions are favorable for disease development. If using the 1 fl. oz./1,000 sq. ft. rate, tank mix with a registered contact fungicide at the label rate.
Melting Out Leaf Spot (<i>Bipolaris</i> spp.) (<i>Oreochlora</i> spp.)	1-4	44-176	14 days	Under light to moderate pressure, apply ArmorTech PPZ 143 MC to reduce the severity of leaf spot and melting out caused by Helminthosporium-type pathogens. For broad-spectrum disease control, tank mix the 1 fl. oz. ArmorTech PPZ 143 MC rate with a registered contact fungicide at the label rate. Tank mix the 1-4 fl. oz./1,000 sq. ft. ArmorTech PPZ 143 MC rate with a registered contact fungicide at the labeled rate.
Summer Patch, Poa Patch (<i>Magnaporthe poae</i>)	2	88	14 days	Apply ArmorTech PPZ 143 MC beginning in April. Use the 2 fl. oz./1,000 sq. ft. rate on a 14-day schedule and the 4 fl. oz./1,000 sq. ft. rate on a 28-day schedule.
	4	176	28 days	

(continued)

TURFGRASS – SPECIFIC DISEASES, RATES, AND APPLICATION TIMING

DISEASE	Fl. Oz. Per 1,000 sq. ft.	Fl. Oz. Per Acre	Application Interval/Timing	Instructions
Take-All Patch (<i>Gaeumannomyces graminis</i>)	2-4	88-176	Spring and Fall	ArmorTech PPZ 143 MC can be applied to reduce the severity of take-all patch. Make 1-2 fall applications in September and October or when night temperatures drop to 55°F, and 1-2 spring applications in April and May, depending on local recommendations.
Spring Dead Spot (<i>Leptosphaeria korrae</i> , <i>Leptosphaeria narman</i> , <i>Ophiosphaerella herpotricha</i> , <i>Gaeumannomyces graminis</i>)	4	176	30 days	Make 1-3 applications of ArmorTech PPZ 143 MC. For one application, apply in September or October. For multiple applications, begin sprays in August.
Necrotic Ring Spot (<i>Leptosphaeria korrae</i>)	4	176	Fall or Spring	Apply in the fall and/or the early spring depending on local recommendations.
Gray Snowmold (<i>Typhula</i> spp.) Pink Snowmold (<i>Microdochium nivale</i>)	2-4	88-176	Late Fall	Make one application of ArmorTech PPZ 143 MC in the late fall before snow cover. Do not apply on top of snow. For optimum disease control, the 2 and 3 fl. oz. ArmorTech PPZ 143 MC rates should be tank mixed with either PCNB or chlorothalonil at label rates.
Fusarium Patch (<i>Fusarium nivale</i>)	2-4	88-176	Fall-Early Spring	Apply when conditions are favorable for disease development.
Yellow Patch (<i>Rhizoctonia cerealis</i>)	3-4	130-176	Late Fall	Make one application of ArmorTech PPZ 143 MC in the late fall before snow cover. Do not apply on top of snow. If using a 3 fl. oz./1,000 sq. ft. rate, tank mix with a registered contact fungicide at the label rate.
Zoysia Patch Large patch of zoysia (<i>Rhizoctonia solani</i>)	3-4	130-176	Early Fall	Make one application in the early fall (mid-September to mid-October) prior to development of disease symptoms. Consult local turfgrass extension experts to determine the optimum application timing for your area.

DICHONDRA – SPECIFIC DISEASE, RATE, AND APPLICATION TIMING

DISEASE	Fl. Oz. Per 1,000 sq. ft.	Fl. Oz. Per Acre	Application Interval/Timing	Instructions
Dichondra Rust (<i>Puccinia dichondrae</i>)	2	88	14-21 days	Apply when conditions are favorable for disease development.

ESTABLISHMENT OF COOL-SEASON TURFGRASS

The primary use of ArmorTech PPZ 143 MC is as a fungicide for use against the diseases listed on this label. As an additional benefit ArmorTech PPZ 143 MC will improve the establishment rate when it is applied to cool-season grass seedlings or sod.

New Seedlings: Apply 1 fl. oz./1,000 sq. ft. at the 2- to 3-leaf stage of growth for faster root development and top growth.

Sod: Apply 1 fl. oz./1,000 sq. ft. 2 to 6 weeks before cutting for increased sod knitting and faster establishment after laying.

DISEASE CONTROL IN NURSERIES (FIELD) AND LANDSCAPE PLANTINGS

1. Use ArmorTech PPZ 143 MC in a preventative disease control program. To determine the use directions for controlling a disease on an ornamental plant species, select the plant species in Table 1. The number in parenthesis following the plant species refers you to the disease(s) controlled in Table 2. Find the disease in Table 2. The number in brackets following the disease refers you to the application regime in Table 3.
2. Allow spray to dry before overhead irrigation is applied.
3. Optimum benefit of ArmorTech PPZ 143 MC is obtained when used in conjunction with sound disease management practices.

GENERAL INFORMATION

ArmorTech PPZ 143 MC may be used at rates of 2 to 24 fl. oz./100 gallons of water for control of diseases of ornamental plant species (Refer to Tables 1, 2, and 3).

Note: For outdoor uses, up to 5.4 gallons of ArmorTech PPZ 143 MC/acre/crop/calendar year may be applied.

For general disease control in landscapes, apply 6 to 8 fl. oz./100 gallons of water every 21 days. For best control, begin ArmorTech PPZ 143 MC applications before disease development.

Note: Plant tolerances to ArmorTech PPZ 143 MC have been found to be acceptable for the specific genera and species of plants listed under the **Directions for Use** section of this label. Other plant species may be sensitive to ArmorTech PPZ 143 MC and diseases other than those listed may not be controlled. Before using ArmorTech PPZ 143 MC on plants or for diseases that are not listed in the **Directions for Use** section of this label, test ArmorTech PPZ 143 MC on a small-scale basis first. **Do not** apply ArmorTech PPZ 143 MC to African violets, begonias, Boston fern, or geraniums. Apply the recommended rates for a particular type of disease, i.e., rust, powdery mildew, etc., and evaluate for phytotoxicity and disease control prior to widespread use.

Table 1. Ornamentals — Plant Species

Numbers in parenthesis refer to diseases controlled. See Table 2.

Herbaceous Ornamental	Woody Ornamental	Non-bearing Fruits and Nuts (Nurseries and landscape plantings)
Calendula (4a)	Amelanchier (4d)	Apple (3g, 4d, 5a)
Carnation (5f)	Ash (4c)	Bartlett pear (3q, 4c, 5a)
Chrysanthemum (2a)	Azalea (2c, 4b)	Cherry (2b, 3d)
Delphinium (4a)	Bayberry (3n)	Citrus (3m)
English Ivy (3e)	Camellia (3e)	Nectarine (2b)
Gomphrena (3a)	Cotoneaster (3i)	Peach (2b)
Impatiens (3a, 3b, 4a)	Crabapple (3c, 3q, 4c, 5a)	Pecan (3b, 3c, 3f, 3l, 3n, 4e)
Iris (5d)	Crape myrtle (4a)	Plum (2b)
Marigold (3a)	Dogwood (3h, 4c)	Walnut (3j)
Monarda (4c)	Douglas fir (5b)	
Phlox (4c)	Elm (4c)	
Snapdragon (5d)	Euonymus (3e, 4c)	
Sweet William (<i>Dianthus tartatus</i>) (3k)	Hawthorn (5a)	
Zinnia (4c)	Holly (3r)	
	Juniper (1a)	
	Lilac (4c)	
	Linden (3e, 3b, 4b)	
	Magnolia (3e, 4b)	
	Maple (3e, 4f)	
	Oaks (3p)	
	Pines (1b, 1c)	
	Poplars (5b)	
	Pyracantha (3o)	
	Red Tip Photinia (3i)	
	Rhaphiolepis (3e, 3i)	
	Rhododendron (2c, 3n)	
	Roses (3g, 4e, 5c) (Outdoor use only)	
	Shasta fir (5e)	
	Sweetgum (3b, 3c, 3n)	
	Sycamore (3e)	
	Tulip tree (3e, 4a)	
	Wax myrtle (3n)	

Table 2. Diseases

Numbers in brackets refer to application regimes. Refer to Table 3.

1. Conifer Blights
 - a. *Phomopsis juniperovora* (Phomopsis Blight) [2]
 - b. *Sirococcus strobolus* (Tip Blight) [4]
 - c. *Sphaeropsis sapinea* (Diplodia Tip Blight) [2]
2. Flower Blight
 - a. *Ascochyta chrysanthemi* (Ray Blight) [3]
 - b. *Monilinia* spp. [1]
 - c. *Ovulinia* spp. [2]
3. Leaf Blights/Spots
 - a. *Alternaria* spp. [2]
 - b. *Cercospora* spp. (Brown Leaf Spot) [3]
 - c. *Cladosporium* spp. (Scab) [3]
 - d. *Coccomyces hiemalis* [1]
 - e. *Colletotrichum* spp. [2]
 - f. *Cristulariella* spp. (Zonate leafspot) [3]
 - g. *Diplocarpon rosae* (Blackspot) [2]
 - h. *Disculis* spp. (Anthracnose) [1]
 - i. *Fabraea maculata* (syn. *Entomosporium maculate*) [2]
 - j. *Gnomonia leptostyla* (Anthracnose) [3]
 - k. *Heterosporium echinulatum* [2]
 - l. *Mycosphaerella caryigena* (Downy Spot) [3]
 - m. *Mycosphaerella fructicola* (Greasy Spot) [5]
 - n. *Septoria* spp. (Leaf Scorch) [3]
 - o. *Spilocaea pyracanthae* [2]
 - p. *Tubakia dryina* [4]
 - q. *Venturia inaequalis* (Scab) [1]
 - r. *Rhizoctonia* web blight [2]
4. Powdery Mildew
 - a. *Erysiphe* spp. [2]
 - b. *Microsphaera* spp. [3]
 - c. *Oidium* spp. [2]
 - d. *Podosphaera* spp. [2]
 - e. *Sphaerotheca pannosa* [2]
 - f. *Phyllactinia* spp. [2]
5. Rust
 - a. *Gymnosporangium juniperi-virginianae* [1]
 - b. *Melampsora occidentalis* [4]
 - c. *Phragmidium* spp. [2]
 - d. *Puccinia* spp. [2]
 - e. *Pucciniastrum goeppertianum* [4]
 - f. *Uromyces dianthi* [2]

Table 3. Application Regimes

- [1] Mix 2 to 4 fl. oz. of ArmorTech PPZ 143 MC in 100 gallons of water and apply as a full-coverage spray to the point of drip. Apply every 14 to 21 days during the period of primary infection. If disease is present, tank mix with an EPA-registered contact fungicide. For flower blight, apply ArmorTech PPZ 143 MC when there is 5 to 10% bloom and again at 70 to 100% bloom. For dogwoods, apply the 2 to 4 fl. oz. rate every 14 days or apply 8 fl. oz. of ArmorTech PPZ 143 MC every 28 days.
- [2] Mix 5 to 8 fl. oz. of ArmorTech PPZ 143 MC in 100 gallons of water and apply as a full-coverage spray to the point of drip. Begin applying when conditions are favorable for disease development and apply as necessary. For blackspot apply with a registered contact fungicide labeled for blackspot. For Calendula, apply every 30 days. For diplodia tip blight, make 3 applications every 14 days prior to major period of infection. For juniper phomopsis blight, make the first application as soon as junipers start to grow, and repeat the applications every 14 to 21 days during periods of active growth.
- [3] Mix 8 to 12 fl. oz. of ArmorTech PPZ 143 MC in 100 gallons of water and apply as a full-coverage spray to the point of drip. Apply every 30 days, beginning when conditions are favorable for the disease development. For pecans, apply the 12 fl. oz. rate beginning at bud break. Apply 3 times at 14-day intervals. For walnuts, apply 8.5 fl. oz. at 14- to 21-day intervals. For ray blight, apply 12 fl. oz. at 7-day intervals or 20 fl. oz. at 14-day intervals. For impatiens, bayberry, linden, magnolia, sweetgum and wax myrtle, the maximum use rate is 8 fl. oz.
- [4] Mix 16 fl. oz. of ArmorTech PPZ 143 MC in 100 gallons of water and apply as a full-coverage spray to the point of drip. Apply every 14 to 28 days, beginning when conditions are favorable for disease development. For Douglas fir needle rust, apply once in May. For tip blight, start applications in mid-late winter and apply 3 times at 2-month intervals.
- [5] Mix 20 to 24 fl. oz. of ArmorTech PPZ 143 MC in 100 gallons of water and apply as a full-coverage spray to the point of drip. Apply during June to August time period.

Note: To avoid possible illegal residues, **do not** apply to apple, cherry, citrus, nectarine, peach, pear, pecan, plum or walnut trees that will bear harvestable fruit within 12 months. **Do not** apply to maple trees that will be used for maple syrup production within one year.

STORAGE AND DISPOSAL

DO NOT contaminate water, food, or feed by storage or disposal.

PESTICIDE STORAGE: Store in original container in a cool area out of the reach of children.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, 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: Nonrefillable container. **Do not** reuse this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your state regulatory agency to determine allowable practices in your state. Offer for recycling, if available.

RESIDUE REMOVAL: 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.

CONDITION 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. Ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather, presence of other materials or other influencing factors in the use of the product which are beyond the control of United Turf Alliance, LLC or Seller. To the extent consistent with applicable law, all such risks shall be assumed by Buyer and User, and Buyer and User agree to hold United Turf Alliance, LLC and Seller harmless for any claims relating to such factors.

United Turf Alliance, LLC 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. This warranty does not extend to the use of this product contrary to label instructions, or under conditions not reasonably foreseeable to or beyond the control of Seller or United Turf Alliance, LLC, and Buyer and User assume the risk of any such use. UNITED TURF ALLIANCE, LLC MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

To the extent consistent with applicable law, neither United Turf Alliance, LLC or Seller shall be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF UNITED TURF ALLIANCE, LLC 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 UNITED TURF ALLIANCE, LLC OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

United Turf Alliance, LLC 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 United Turf Alliance, LLC.

ArmorTech is a trademark of United Turf Alliance, LLC.

EPA070709

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

COMPANY ADDRESS:
 United Turf Alliance LLC
 8014 Cumming Highway
 Suite 403-282
 Canton GA 30115

EMERGENCY TELEPHONE NUMBERS:
 For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident
 Call CHEMTREC Day or Night

- Within USA and Canada: 1-800-424-9300 CCN771
- Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

PRODUCT NAME : ArmorTech PPZ 143 MC
CHEMICAL NAME : Propiconazole
PRODUCT USE : Fungicide
PRODUCT CODE : EPA Reg. No 86064-4

SECTION 2 - HAZARDS IDENTIFICATION SUMMARY

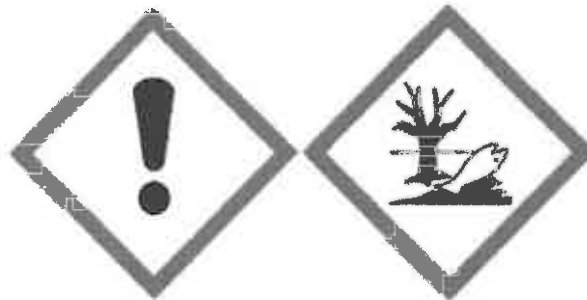
(As defined by OSHA Hazard Communication Standard, 29 CFR 1910.1200)

Yellow clear liquid

HEALTH HAZARDS: Harmful if swallowed or inhaled. Eye irritant. Possible skin sensitizer.

PHYSICAL HAZARDS: May release toxic fumes if burned.

ENVIRONMENTAL HAZARDS:
 propiconazole is toxic to aquatic life.

**SECTION 3 - COMPOSITION, INFORMATION OF INGREDIENTS**

COMPONENT	PERCENTAGE	CAS NUMBER
Propiconazole	14.3	60207-90-1
Other components	85.7	N/A

SECTION 4 - FIRST AID MEASURES

First Aid responders should use protective equipment in Section 8 if there is a potential for exposure to product.

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 do so by the 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 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 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: Contains xylene-range aromatic solvent. Vomiting may cause aspiration pneumonia. If ingested, lavage stomach to avoid aspiration. A slurry of activated charcoal in water can be left in the stomach. Give a saline laxative and supportive therapy.

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

SECTION 5 - FIRE FIGHTING MEASURES

National Fire Protection Rating (NFPA)

HEALTH	1
FLAMMABILITY	1
REACTIVITY	0
4=Severe 3=Serious 2=Moderate 1=Slight 0=Minimal	

FLASHPOINT: >100°C

EXTINGUISHING MEDIA: Use foam, dry chemical, carbon dioxide, or water spray when fighting fires involving this material.

FIRE AND EXPLOSION HAZARD: Can burn in fire, releasing irritating and toxic gases due to thermal decomposition or combustion.

FIRE FIGHTING INSTRUCTIONS: Evacuate area and fight fire upwind from a safe distance to avoid hazardous vapors and decomposition products. Fire exposed containers can build up pressure and should be kept cool with water spray if possible. Dike and collect water used to fight fire to prevent environmental damage due to run off.

Minimize use of water to prevent environmental contamination. Contact your State Pesticide or Environmental Control Agency, or nearest EPA Regional Office for guidance on disposal.

FIRE FIGHTING EQUIPMENT: Self-contained breathing apparatus with full facepiece.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILLS OR LEAKS: Clean up spills immediately, observing precautions in Section 8 of this document. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

SMALL SPILL: Absorb small spills on sand, vermiculite or other inert absorbent. Place contaminated material in appropriate container for disposal.

LARGE SPILL: Dike large spills using absorbent or impervious material such as clay or sand. Recover and contain as much free liquid as possible for reuse. Allow absorbed material to solidify, and scrape up for disposal. After removal, clean contaminated area thoroughly with water. Pick up wash liquid with additional absorbent and place in a disposable container.

Minimize use of water to prevent environmental contamination

SECTION 7 - HANDLING AND STORAGE

KEEP OUT OF REACH OF CHILDREN!

Wear proper safety equipment specified in Section 8 when mixing, loading or otherwise handling concentrate.

HANDLING: Use only in a well-ventilated area. Wear appropriate safety equipment when handling.

STORAGE: Store in original container with lid tightly closed. Keep away from food, feed and drinking water. Store in a well ventilated, dry place away from heat and other sources of ignition.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION**EXPOSURE LIMITS (8 hour TWA, ppm):**

COMPONENT	OSHA PEL	ACIGH TLV
Propiconazole	Not listed	Not listed

ENGINEERING CONTROLS: Proper ventilation is required when handling or using this product to minimize exposure to airborne contaminants. Local mechanical exhaust ventilation may be required. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

PERSONAL PROTECTIVE EQUIPMENT:

EYE PROTECTION - Safety glasses or goggles.

CLOTHING - Long-sleeved shirt and long pants, Shoes plus socks.

GLOVES - Chemical-resistant gloves

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.

USER SAFETY RECOMMENDATIONS: 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. Remove PPE immediately after handling this product. Wash outside of gloves before removing. As soon as possible wash thoroughly and change into clean clothing.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Yellow clear liquid
Odor:	Faint odor
pH:	6.8 – 7.8
Melting Point:	Not applicable
Boiling Point:	No data
Flash Point:	>100°C
Evaporation Rate:	No data
Flammability:	No data
Flammability Limits:	No data
Vapor Pressure:	5.6 x 10 ⁻² mPa (25°C) (Propiconazole)
Vapor Density:	Not applicable
Density:	1.07 – 1.11 g/ml (8.93 – 9.26 lb/g)*
Solubility:	Emulsifies
Partition Coefficient:	log P = 3.72 (pH 6.6, 25°C) (Propiconazole)
Auto-Ignition Temperature:	No data
Decomposition Temperature:	No data
Viscosity:	164.9 cSt (20°C), 60.2 cSt (40°C)

*Listed density is an approximate value and does not necessarily represent that of a specific batch.

SECTION 10 - STABILITY AND REACTIVITY**PRODUCT REACTIVITY:**

CHEMICAL STABILITY: Stable, however may decompose if heated.

HAZARDOUS REACTION/POLYMERIZATION: Product will not undergo polymerization.

CONDITIONS TO AVOID: Avoid temperatures above (125°F, 48°C)

INCOMPATIBLE MATERIALS: Acidic and oxidizing materials

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrogen chloride, Oxides of nitrogen

SECTION 11 - TOXICOLOGICAL INFORMATION**ACUTE TOXICITY:**

Oral LD ₅₀ (rat)	No data
Dermal LD ₅₀ (rat)	No data
Inhalation LC ₅₀ (rat)	No data
Eye Irritation (rabbit)	No data
Skin Irritation (rabbit)	No data
Sensitization (guinea pig)	No data

CARCINOGEN STATUS:

OSHA	- Not listed
NTP	- Not listed
IARC	- Not listed

TERATOGENICITY: Effects only noted at maternally toxic doses.

MUTAGENICITY: Weight of evidence indicates that propiconazole is non-mutagenic

SECTION 12 - ECOLOGICAL INFORMATION

ENVIRONMENTAL SUMMARY: This pesticide is toxic to fish and shrimp. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash waters.

FATE: Propiconazole is moderately persistent with a soil half-life of 30-365 days depending on soil type and weather conditions. Propiconazole binds to soil and is immobile in most soil types.

FISH TOXICITY: (technical)

96 hour LC ₅₀ , Rainbow trout –	0.8 ppm
96 hour LC ₅₀ , Bluegill –	1.3 ppm

AVIAN TOXICITY: (technical)

Dietary LC ₅₀ , Bobwhite quail –	> 5,000 ppm
Dietary LD ₅₀ , Mallard duck –	> 5,000 ppm

BEE TOXICITY: (technical)

> 25 ug/bee

SECTION 13 - DISPOSAL CONSIDERATIONS

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

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Non-refillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsates into application equipment or mix tank or store rinsates for later use and disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Refer to the product label for additional and complete Container Handling instructions

SECTION 14 - TRANSPORT INFORMATION**SHIPPING DESCRIPTION:**

(Ground transport)

Not regulated by DOT

(Marine transport)

UN3082, Environmentally Hazardous Substance, Liquid, N.O.S., 9, III, Marine Pollutant (propiconazole)

TRANSPORT HAZARD CLASS:

N/A

UN NUMBER:

N/A

DOT PACKING GROUP:

PG III

SECTION 15 - REGULATORY INFORMATION

CERCLA REPORTABLE QUANTITY:

Not listed

SARA TITLE III STATUS:

311/312 Hazard Categories –
313 Toxic Chemicals –

Immediate, Fire
Propiconazole

CALIFORNIA PROP 65:

Propiconazole not listed

TSCA:

This product is exempted from TSCA because it is solely for FIFRA regulated use.

SECTION 16 - OTHER INFORMATION

HMS HAZARD RATINGS	HEALTH	1
	FLAMMABILITY	1
	PHYSICAL HAZARD	0
4=Severe 3=Serious 2=Moderate 1=Slight 0=Minimal		

DISCLAIMER: The information presented herein is based on available data from reliable sources and is correct to the best of Albaugh's knowledge. Albaugh makes no warranty, express or implied, regarding the accuracy of the data or the results obtained from the use of this product. Nothing herein may be construed as recommending any practice or any product in violation of any law or regulations. The user is solely responsible for determining the suitability of any material or product for a specific purpose and for adopting any appropriate safety precautions.

This Safety Data Sheet (SDS) serves different purposes than and **DOES NOT REPLACE OR MODIFY THE EPA APPROVED PRODUCT LABELING** (attached to and accompanying the product container). This SDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling.

It is a violation of federal law to use a pesticide product in any manner not prescribed on the EPA-approved label.

REVISED DATE: February, 2015

REFERENCE: Revised for GHS compliance



CLT 720 FL

ACTIVE INGREDIENT:

Chlorothalonil (tetrachloroisophthalonitrile): 54.0%

OTHER INGREDIENTS: 46.0%**TOTAL:** 100.0%

Contains 6.0 Pounds of Chlorothalonil per Gallon (720 grams per liter).

EPA Reg. No. 86064-2

EPA Est. Nos.: 70815-GA-001 (Lot No. begins with CB),
37429-GA-01 (Lot No. begins with BT),
070989-AR-001 (Lot No. begins with OS)

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 this label, find someone to explain it to you in detail.)

FIRST AID	
IF SWALLOWED	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Have affected person sip a glass of water if able to swallow. • Do not induce vomiting unless told by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
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 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.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
EMERGENCY PHONE NUMBERS	(800) 424-9300 CHEMTREC (transportation and spills) (600) 856-7375 NPIG
NOTE TO PHYSICIAN	
Probable mucosal damage may contraindicate the use of gastric lavage. Persons having a temporary allergic reaction respond to treatment with antihistamines or steroid creams and/or systemic steroids.	

See inside label booklet for additional Precautionary Statements.

United Turf Alliance • 12840 Ford Dr. • Fishers, IN 46038



United Turf Alliance

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. Avoid contact with eyes, skin or clothing. DO NOT breathe spray mist.

PERSONAL PROTECTIVE EQUIPMENT (PPE):

Mixers, loaders, applicators and all other handlers must wear:

- Long-sleeved shirt and long pants;
- Shoes plus socks;
- Protective eyewear;
- Chemical-resistant gloves made of any waterproof material such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyethylene, polyvinyl chloride, or viton; if you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart);
- A NIOSH-approved respirator with an organic vapor (OV) cartridge or canister with any N, R, P, or HE prefilter.

USER SAFETY REQUIREMENTS

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

ENGINEERING CONTROLS

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.

ENVIRONMENTAL HAZARDS

This product is toxic to aquatic invertebrates and wildlife. DO NOT apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high-water mark. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. DO NOT contaminate water when disposing of equipment washwater or rinsate.

Chlorothalonil can contaminate surface water through spray drift. DO NOT apply when weather conditions favor drift from treated areas. 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 in-field 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. Chlorothalonil degradates are known to leach through soil into ground water under certain conditions as a result of label use. Use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

DIRECTIONS FOR USE

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

General Precautions and Restrictions: DO NOT apply this product in a way that will contact workers or other persons, or pets, either directly or through drift. Only protected handlers may be in the area during applications. For any requirements specific to your State or Tribe, consult the Agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval (REI). The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard (WPS).

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, and 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 1/2 days entry is permitted only when the following safety measures are provided:

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.

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; and
- how to operate the eyeflush container.

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170):

DO NOT enter or allow others to enter into treated areas until spray deposits have dried.

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

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. 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 to 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 must be observed.

AERIAL DRIFT ADVISORY INFORMATION

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 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 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces 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 up 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, small 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.

INTEGRATED PEST MANAGEMENT

ArmorTech CLT 720 FL is an excellent disease control agent when used according to label directions for control of a broad spectrum of plant diseases. ArmorTech CLT 720 FL is recommended for use in programs that are compatible with the principles of Integrated Pest Management (IPM), including the use of disease resistant crop varieties, cultural practices, pest scouting and disease forecasting systems which reduce unnecessary applications of pesticides.

FUNGICIDE RESISTANCE MANAGEMENT

ArmorTech CLT 720 FL 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 mode of fungicidal action. ArmorTech CLT 720 FL, 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 ArmorTech CLT 720 FL in programs which seek to minimize the occurrence of disease resistance to other fungicides.

MIXING, LOADING AND APPLYING

ArmorTech CLT 720 FL is intended to be diluted into water, then applied to crops by typical agricultural spraying techniques. **Always apply ArmorTech CLT 720 FL in sufficient water to obtain thorough, uniform coverage of foliage and crop surfaces intended to be protected from disease.** Spray volume to be used will vary with crop and amount of plant growth. Spray volume should normally range from 20 to 150 gallons per acre (200 to 1400 liters per hectare) for dilute sprays and 5 to 10 gallons per acre (50 to 100 liters per hectare) for concentrate ground sprays and aircraft applications. Both ground and aircraft methods of application are recommended unless specific directions are given for a crop.

Slowly invert container several times to assure uniform mixture. Measure the required amount of ArmorTech CLT 720 FL and pour into the spray tank during filling. Keep agitator running when filling spray tank and during spray operations.

Do not use on greenhouse-grown crops except as directed in the Ornamental Plants section of this label.

TANK MIXING

When tank mixing this product with other pesticides observe the more restrictive label limitations and precautions. No label dosage rates should be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing.

Do not combine ArmorTech CLT 720 FL in sprayer 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 ArmorTech CLT 720 FL with Dipel 4L, Foil, Triton AG-98, Triton B-1956 or Latron B-1956, as phytotoxicity may result from the combination when applied to the crops on this label. DO NOT tank mix ArmorTech CLT 720 FL with oil, or with any adjuvants which contain oil as their principal ingredient. Do not use with Copper-Count N in concentrated spray suspensions.

Dipel is a registered trademark of Abbott Laboratories;

Foil is a registered trademark of Ecogen, Inc.;

Latron and B-1956 are trademarks of Rohm and Haas Company;

Copper-Count is a registered trademark of Mineral Research and Development Corporation.

APPLICATIONS THROUGH SPRINKLER IRRIGATION SYSTEMS (CHEMIGATION)

Application through sprinkler irrigation systems is recommended only for those specific crops for which the notation "chemigation OK" is listed on this label.

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 ArmorTech CLT 720 FL 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.

ArmorTech CLT 720 FL 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.

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

For injection of pesticides, these continuously moving systems must use a metering pump, such as 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 to 3 times those encountered within the irrigation water line.

Venturi applicator units cannot be used on these systems.

Fill chemical supply tank of injection equipment with water. Operate system for one complete revolution or run across the field, measuring time required, amount of water injected, and acreage covered. Thoroughly mix recommended amount of ArmorTech CLT 720 FL 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 ArmorTech CLT 720 FL 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 ArmorTech CLT 720 FL for acreage to be covered with water so that the total mixture of ArmorTech CLT 720 FL 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. No agitation should be required. ArmorTech CLT 720 FL 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 ArmorTech CLT 720 FL has been cleared from last sprinkler head.

Application Rates

Dosage rates on this label indicate pints of ArmorTech CLT 720 FL per acre, unless otherwise stated. Under conditions favoring disease development, the high rate specified and shortest application interval should be used.

For each listed crop, the maximum total amount of chlorothalonil active ingredient (lbs a.i./A) which may be applied per acre of that crop (or crop group) during each growing season is given in bold print within a box beneath the crop name. For each crop use situation listed below, the listed maximum individual and seasonal application rates must not be exceeded and the listed minimum retreatment intervals must not be decreased.

CONIFERS

Apply this product in sufficient water and with proper calibration to obtain uniform coverage of tree canopy. Application with ground equipment is preferable to aerial application because ground applications generally give better coverage of the tree canopy.

DO NOT allow livestock to graze in treated areas.

DO NOT apply ArmorTech CLT 720 FL within one week before or after application of oil or an oil-based pesticide.

CROP (max lbs a.i./A)	PHI (DAYS)	SPRAY VOLUME (GALLONS/ACRE)	RATE PER ACRE	DISEASES	APPLICATION DIRECTIONS			
Conifers 16.5 lbs a.i./A	N/A	5 to 10 (concentrate ground or aircraft) to 100 (dilute)	2 ¼ to 5 ½ pints	Swiss needlecast	Single application technique: In Christmas tree plantations or forest stands make one application in the spring when new shoot growth is ½ to 2 inches in length.			
			1 ½ to 2 ¾ pints	Sclerodermis canker (pines), Swiss needlecast				
			2 to 3 ½ pints	Sirococcus tip blight				
						5 ½ pints	Rhizosphaera needlecast (spruces) Schirrhia brown spot (pines)	Make the first application in spring when new shoot growth is ½ to 2 inches in length. Make additional applications at 3 to 4 week intervals until conditions no longer favor disease development. For use in nursery beds, apply the highest rate specified on a 3 week schedule.
						2 ¼ to 5 ½ pints	Cyclaneusma and Lophodermium needlecasts (pines)	
						1 ½ to 2 ¾ pints	Rhabdocline needlecast (Douglas-fir)	Apply in early spring prior to budbreak. Repeat applications at approximately 6 to 8 week intervals, until spore release ceases in late fall. Apply monthly during periods of frequent rainfall, and where Lophodermium infections occur during dormancy (Pacific Northwest). During drought periods, applications may be suspended, then resumed upon next occurrence of needle wetness.
						2 ¾ pints	Botrytis seedling blight, Phoma twig blight	Apply at budbreak and repeat at 3 to 4 week intervals until needles are fully elongated and conditions no longer favor disease development. In plantations of mixed provenance, or when irregular budbreak occurs, apply weekly until all trees have broken bud, then every 3 to 4 weeks as specified above. In nursery beds, use the high rate on a 3 week schedule.
			5 ½ pints	Autoecious needle rust (Weir's cushion rust) (spruces)	Begin applications in nursery beds when seedlings are 4 inches tall and when cool, moist conditions favor disease development. Make additional applications at 7 to 14 day intervals as long as disease favorable conditions persist.			
					Begin applications when 10% of buds have broken and repeat twice thereafter at 7-10 day intervals.			

TURFGRASSES

Do not use on home lawns and turf sites associated with apartment buildings, daycare centers, playgrounds, playfields, recreational park athletic fields, athletic fields located on or next to schools (i.e., elementary, middle and high schools), campgrounds, churches and theme parks. Sod farm turf treated with chlorothalonil prior to harvest must be mechanically cut, rolled and harvested. Do not apply more than the following totals of chlorothalonil active ingredient from all registered product sources to the indicated types of turfgrass: Do not use for sodfarms at application rates greater than 13 pounds of active ingredient, per acre, per year.

TYPE OF TURFGRASS	TOTAL CHLOROTHALONIL ACTIVE INGREDIENT PER ACRE PER YEAR
Golf Course Greens	73 lbs.
Golf Course Tees	52 lbs.
Golf Course Fairways	26 lbs.
Sod Farms	13 lbs.

Apply ArmorTech CLT 720 FL in 90 to 450 gallons of water per acre on golf course greens and tees, and 30 to 100 gallons of water per acre on fairways and lawns. Apply with ground equipment only.

Begin applications when conditions favor disease development and repeat applications as long as these conditions persist. Under severe disease conditions use the highest rate and shortest interval corresponding with the application schedule selected from the table below. DO NOT mow or irrigate after treatment until spray deposit on turfgrass is thoroughly dry. ArmorTech CLT 720 FL should always be used in conjunction with good turf management practices.

DISEASES* CONTROLLED	INTERVAL OF APPLICATION	GOLF COURSE GREENS & TEES RATE PER 1000 SQ. FT.	GOLF COURSE FAIRWAYS RATE PER ACRE
1. Dollar spot 2. Brown patch 3. Leaf spot, Melting-out, Brown blight 4. Gray leaf spot	7 to 14 days	2 to 3.6 fluid ounces (4.1 to 7.3 lbs. a.i./acre)	5 ½ to 9 ¾ pints (4.1 to 7.3 lbs. a.i./acre)
5. Red thread 6. Anthracnose 7. Copper spot 8. Stem rust (bluegrass) 9. Dichondra leaf spot	7 to 14 days	3.6 fluid ounces to 5 ½ fluid ounces (7.3 to 11.3 lbs. a.i./acre)	9 ¾ pints to 15 pints (7.3 to 11.3 lbs. a.i./acre)

*Diseases listed are caused by fungi, some of which are named as follows:

1. Dollar spot: *Sclerotinia homeocarpa*; *Lanzia* or *Moellerodiscus* spp.
2. Brown patch: *Rhizoctonia solani*, *R. zeae*, *R. cerealis*
3. Leaf spots, Melting-out, Brown blight: *Drechslera* spp. (including *D. poae*, *D. siccans*), *Bipolaris sorokiniana*, *Curvularia* spp.
4. Gray leaf spot: *Pyricularia grisea*, *P. oryzae*
5. Red thread: *Laetisaria fuciformis*
6. Anthracnose: *Colletotrichum graminicola*
7. Copper spot: *Gloeocercospora sorghi*
8. Stem rust: *Puccinia graminis*
9. Dichondra leaf spot: *Alternaria* spp.

Gray Snow Mold caused by *Typhula* spp. Apply in sufficient water to obtain adequate coverage (2 to 10 gallons per 1,000 square feet). Apply 5 1/2 fluid ounces of ArmorTech CLT 720 FL per 1,000 square feet of turf area (15 pints per acre). Application must be made before snow cover in autumn. If snow cover is intermittent or lacking during the winter, re-apply ArmorTech CLT 720 FL at monthly intervals until Gray Snow Mold conditions no longer prevail. In areas where Pink Snow Mold (*Microdochium* or *Fusarium* patch) is likely to occur, apply ArmorTech CLT 720 FL at 5 1/2 fluid ounces in combination with products containing iprodione at 2 ounces active ingredient, per 1,000 square feet of turf area. Read and observe all label directions for products containing these active ingredients.

Fusarium (Microdochium) Patch: ArmorTech CLT 720 FL is effective against Fusarium patch only in areas where snow cover is intermittent or lacking during the winter. Apply 5 1/2 fluid ounces of ArmorTech CLT 720 FL per 1,000 square feet of turf area. Begin applications in late autumn and re-apply at 21 to 28 day intervals until conditions favorable for Fusarium patch no longer prevail.

Algal scum: Apply ArmorTech CLT 720 FL at 2 to 3.6 fluid ounces per 1,000 square feet on a 7 to 14 day schedule. When colonies of algae are well established, every attempt should be made to dry out the afflicted area. Once dry, spiking or verticutting should be done to enhance turfgrass recovery in conjunction with the use of ArmorTech CLT 720 FL. Several applications of ArmorTech CLT 720 FL at the high rate may be necessary for turfgrass recovery. When environmental conditions are favorable for algae growth, a preventive program with ArmorTech CLT 720 FL will suppress re-colonization of the turf.

ORNAMENTAL PLANTS

Apply ArmorTech CLT 720 FL at a rate of 1 3/8 pints per 100 gallons of water unless other directions are given in the tables below. Apply enough diluted spray per acre to provide thorough coverage of all plant parts that are intended to be protected from disease, generally ranging from 20 to 150 gallons per acre. Repeat applications at 7 to 14 day intervals until conditions are no longer favorable for disease. During periods when conditions favor severe disease incidence, generally cloudy or wet weather, apply ArmorTech CLT 720 FL at 7 day intervals. **DO NOT apply more than a total of 36.4 lbs. chlorothalonil active ingredient per acre per growing season on field-grown ornamentals.**

Fruits and other structures which may be borne on treated plants **MUST NOT BE EATEN.**

This product may be used in greenhouses. DO NOT use mistblowers or high pressure spray equipment when making applications of this product in greenhouses. ArmorTech CLT 720 FL is recommended for control of fungal diseases referred to by numbers in parentheses following each type of ornamental plant. The user should test for possible phytotoxic responses, using recommended rates on each type of ornamental plant on a small area prior to widespread use. Applications made during bloom may damage flowers and/or fruits.

ORNAMENTALS RECOMMENDED FOR TREATMENT WITH ArmorTech CLT 720 FL

Broadleaf Shrubs and Trees		
Andromeda (<i>Pieris</i>) (4)	Flowering almond (1,2)	Oregon-grape (<i>Mahonia</i>) (6)
*Ash (<i>Fraxinus</i>) (1)	Flowering cherry (1,2)	Red-tip (<i>Photinia</i>) (1)
Aspen (1)	*Flowering peach (1,2)	Poplar (1)
Azalea (1,2,4)	*Flowering plum (1,2)	*Privet (<i>Ligustrum</i>) (1)
Buckeye, Horsechestnut (1)	Flowering quince (1,2)	Rhododendron (1,2,4)
*Camellia (2)	Hawthorn (1,6)	*Sand cherry (1,2)
Cherry-laurel (1)	Holly (1)	*Sequoia (1)
Crabapple (1,6)	*Lilac (5)	*Spirea (1)
Dogwood (1)	*Magnolia (1)	Sycamore, Planetree (1)
*Eucalyptus (3)	*Maple (1)	Viburnum (5)
Euonymus (1)	Mountain laurel (1)	*Walnut (<i>Juglans</i>) (1)
Firethorn (<i>Pyracantha</i>) (1)	Oak (red group only) (1,7)	

*Not approved for use in California.

Flowering ^a Plants and Bulbs		
*Arabian violet (2)	Gladiolus (1,2)	Petunia (1,4)
Begonia (1)	Hollyhock (6)	*Phlox (1)
Carnation (1,2)	Hydrangea (foliage only) (1,6)	*Poinsettia ^b (1)
Chrysanthemum (1,2)	Iris (1,2)	Rose ^c (1)
*Crocus (1)	Lily (1)	Statice (1)
*Daffodil (1)	*Marigold (1)	Tulip (1)
Daisy (1)	*Narcissus (1)	Zinnia (1,5)
Geranium (1,6)	*Pansy (1)	

*Not approved for use in California.

a/ Avoid applications during bloom period on plants where flower injury is unacceptable.

b/ Discontinue applications prior to bract formation; phytotoxicity is possible on the bracts.

c/ Use 1 pint of ArmorTech CLT 720 FL per 100 gallons of water.

Foliage Plants		
*Aglaonema (1)	*Ficus (1)	Parlor palm (<i>Chamaedorea</i>) (1)
*Areca palm (1)	*Florida ruffe fern (1)	*Peperomia (1)
*Artemesia (1)	Leatherleaf fern (1)	Philodendron (1,4)
*Boston fern (<i>Nephrolepis</i>) (1)	*Lipstick Plant (1)	Prayer plant (<i>Maranta</i>) (1)
Dracaena (1)	*Ming aralia (1)	Syngonium (1)
Dumbcane (<i>Dieffenbachia</i>) (1)	Oyster plant (<i>Rhoeo</i>) (1)	*Zebra plant (<i>Aphelandra</i>)
*Fatsia (<i>Aralia</i>) (1)	Pachysandra ^d (1)	

*Not approved for use in California.

d/ Use 2 3/4 pints of ArmorTech CLT 720 FL per 100 gallons of water.

DISEASES CONTROLLED WITH ArmorTech CLT 720 FL:

1. Leafspots & Foliar Blights:		
Actinopelte leafspot	Curvularia leafspot	*Phyllosticta leafspot
Alternaria leafspot or leaf blight	Dactylaria leafspot	*Ramularia leafspot
Anthraxnose (<i>Gnomonia</i> , <i>Glomerella</i> , <i>Colletotrichum</i> , <i>Discula</i>) blights	Didymellina leafspot	Rhizoctonia web blight
Black spot (<i>Diplocarpon</i>)	*Drechslera (<i>Bipolaris</i>) leafspots, inkspot	Scab (<i>Venturia</i>)
Botrytis blights	Fabraea (<i>Entomosporium</i>) leafspot	Septoria leafspot
Cephalosporium leafspot	Fusarium (<i>Gibberella</i>) leafspot	Sphaeropsis leafspot
Cercospora leafspot	*Gloeosporium black leafspot	*Stagonospora leaf scorch
Cercosporidium leafspot	Marssonina leafspot	Tan leafspot (<i>Curvularia</i>)
Shothole (<i>Stigmina</i>)	Monilinia blossom blight, twig blight	Volutella leaf blight
*Corynespora stem & leafspots	Mycosphaerella ray blight	
	*Myrothecium leafspot, brown rot	

*Not approved for use in California.

2. Flower Spots and Blights

Botrytis flower spot, flower blight Curvularia flower spot	Monilinia blossom blight Ovulinia flower blight	*Rhizopus blossom blight *Sclerotinia flower blight
---	--	--

*Not approved for use in California.

3. *Cylindrocladium stem canker

*Not approved for use in California.

4. Phytophthora leaf blight, dieback**5. Powdery mildews:**

<i>Erysiphe cichoracearum</i>	Microsphaera spp.	<i>Sphaerotheca fuliginea</i>
-------------------------------	-------------------	-------------------------------

6. Rusts:

<i>Gymnosporangium</i> spp.	Puccinia spp.	<i>Pucciniastrum hydrangeae</i>
-----------------------------	---------------	---------------------------------

7. Taphrina blister**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 toxic. 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: 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 ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Returnable Refillable Container: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

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. Ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather, presence of other materials or other influencing factors in the use of the product, which are beyond the control of United Turf Alliance or Seller. To the extent consistent with applicable law, all such risks shall be assumed by Buyer and User, and Buyer and User agree to hold United Turf Alliance and Seller harmless for any claims relating to such factors.

United Turf Alliance 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. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or United Turf Alliance, and Buyer and User assume the risk of any such use. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, UNITED TURF ALLIANCE MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

To the extent consistent with applicable law, neither United Turf Alliance nor Seller shall be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF UNITED TURF ALLIANCE 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 UNITED TURF ALLIANCE OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

United Turf Alliance 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 United Turf Alliance.

Safety Data Sheet

Issue Date: 04-Mar-2010

Revision Date: 12-Jan-2016

Version 3

1. IDENTIFICATION

Product Identifier

Product Name **ArmorTech CLT 720 Fungicide**

Other means of identification

SDS # 053A

Registration Number(s) EPA Reg. No. 66222-154-86064

Recommended use of the chemical and restrictions on use

Recommended Use EPA registered pesticide.

Details of the supplier of the safety data sheet

Manufacturer Address

ADAMA
3120 Highwoods Blvd., Suite 100
Raleigh, NC 27604
1-919-256-9300

Emergency Telephone Number

Emergency Telephone (24 hr) For fire, spill and/or leak contact INFOTRAC:
1-800-535-5053 (North America) 1-352-323-3500 (International)
For medical emergencies and health/safety inquiries, contact PROSAR:
1-877-250-9291

2. HAZARDS IDENTIFICATION

This chemical is a product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-EPA registered chemicals. Please see Section 15 for additional EPA information.

Appearance Off-white liquid

Physical State Liquid

Odor Slight

Classification

Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Serious eye damage/eye irritation	Category 2
Carcinogenicity	Category 2
Specific target organ toxicity (single exposure)	Category 3

Hazards Not Otherwise Classified (HNOC)

May be harmful in contact with skin

Signal Word

Danger

Hazard Statements

Harmful if inhaled
 Causes serious eye irritation
 May cause an allergic skin reaction
 Suspected of causing cancer
 May cause respiratory irritation

**Precautionary Statements - Prevention**

Obtain special instructions before use
 Do not handle until all safety precautions have been read and understood
 Use personal protective equipment as required
 Do not breathe dust/fume/gas/mist/vapors/spray
 Use only outdoors or in a well-ventilated area
 Wear respiratory protection

Precautionary Statements - Response

If exposed or concerned: Get medical advice/attention
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 Immediately call a poison center or doctor/physician
 IF ON SKIN: Wash with plenty of soap and water
 If skin irritation or rash occurs: Get medical advice/attention
 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
 Call a poison center or doctor/physician if you feel unwell

Precautionary Statements - Storage

Store locked up
 Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Other Hazards

Very toxic to aquatic life with long lasting effects

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
Chlorothalonil	1897-45-6	52.38-55.62
Proprietary Solvent	Proprietary	<10

If Chemical Name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. FIRST-AID MEASURES

First Aid Measures**General Advice**

When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment. If exposed or concerned: Get medical advice/attention.

Eye Contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.
Skin Contact	IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.
Inhalation	Remove to fresh air. Give oxygen if breathing is difficult. If breathing has stopped, call 911, give artificial respiration. Call a physician or poison control center immediately.
Ingestion	Do not induce vomiting, unless directed by medical personnel. Never give anything by mouth to an unconscious person. If conscious, give 1 glass of water to dilute.

Most important symptoms and effects

Symptoms	Direct contact with skin can cause irritation or redness. Causes serious eye damage. May cause respiratory irritation. Vapors may cause irritation to nose, throat, and respiratory tract. High vapor concentrations may cause central nervous system depression which can lead to dizziness, weakness and headache.
-----------------	--

Indication of any immediate medical attention and special treatment needed

Notes to Physician	Treat symptomatically. Persons having temporary irritation may respond to treatment with antihistamines or steroid creams and/or systemic steroids.
---------------------------	---

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Carbon dioxide, or dry foam.

Unsuitable Extinguishing Media Not determined.**Specific Hazards Arising from the Chemical**

Product is not flammable.

Hazardous Combustion Products During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Hydrogen chloride.**Protective equipment and precautions for firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Evacuate area of unprotected personnel. Remain upwind of fire to avoid hazardous vapors and decomposition products. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions	Wear protective clothing as described in Section 8 of this safety data sheet. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.
Environmental Precautions	Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. See Section 13: DISPOSAL CONSIDERATIONS.

Methods and material for containment and cleaning up

Methods for Containment	Prevent further leakage or spillage if safe to do so.
Methods for Clean-Up	Vacuum or sweep up material and place in a disposal container. Wash area with soap and water. Pick up wash liquid with inert absorbent and place in a chemical waste container for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling

Handle in accordance with good industrial hygiene and safety practice. Use personal protection recommended in Section 8. Avoid contact with skin, eyes or clothing. Wash contaminated clothing before reuse. Avoid spilling. Avoid breathing vapors or mists. Use only outdoors or in a well-ventilated area. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Open containers cautiously. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink, smoke, or apply cosmetics while handling this product.

Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep container tightly closed and store in a cool, dry and well-ventilated place. Keep out of the reach of children. Keep/store only in original container. Store locked up. Protect from excessive heat. Keep away from food, drink and animal feeding stuffs. Do not use food or drink containers for mixing or storage. Store at ambient conditions.

Incompatible Materials

Metals such as aluminum, tin, and zinc. Alkaline conditions.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Proprietary Solvent	Ceiling: 100 mg/m ³ aerosol only	(vacated) Ceiling: 50 ppm (vacated) Ceiling: 125 mg/m ³	-

Appropriate engineering controls

Engineering Controls

Please refer to the product label. Use only with adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures, such as personal protective equipment

Eye/Face Protection

Wear safety glasses with side shields (or goggles). Goggles are recommended.

Skin and Body Protection

Wear appropriate clothing to prevent repeated or prolonged skin contact. Wear long-sleeved shirt, long pants, and shoes plus socks. Use chemical resistant gloves, such as P.V.C., butyl-rubber, nitrile-rubber, or neoprene.

Respiratory Protection

NIOSH-approved respirator or mask in the absence of adequate ventilation.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice. Wash face, hands and any exposed skin thoroughly after handling. Take off all contaminated clothing and wash it before reuse. 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 and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Liquid	Odor	Slight
Appearance	Off-white liquid	Odor Threshold	Not determined
Color	Off-white		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	7.7	(1% dispersion)
Melting Point/Freezing Point	Not determined	
Boiling Point/Boiling Range	Not determined	
Flash Point	Not applicable	
Evaporation Rate	Not applicable	
Flammability (Solid, Gas)	Liquid-not applicable	
Upper Flammability Limits	Not applicable	
Lower Flammability Limit	Not applicable	
Vapor Pressure	Not determined	
Vapor Density	Not determined	
Specific Gravity	Not determined	
Water Solubility	Not determined	
Solubility in other solvents	Not determined	
Partition Coefficient	Not determined	
Auto-ignition Temperature	Not applicable	
Decomposition Temperature	Not determined	
Kinematic Viscosity	Not determined	
Dynamic Viscosity	807 cps	
Explosive Properties	Not determined	
Oxidizing Properties	Not determined	
Density	1.32 g/ml	

10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions.

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Hazardous Polymerization

Hazardous polymerization does not occur.

Conditions to Avoid

Keep out of reach of children. Store away from foodstuffs, animal feed, and incompatibles. See Sec. 7 Handling & Storage. Contact with incompatible materials.

Incompatible Materials

Metals such as aluminum, tin, and zinc. Alkaline conditions.

Hazardous Decomposition Products

May emit toxic fumes under fire conditions. Hydrogen chloride.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Eye Contact	Causes serious eye irritation.
Skin Contact	May be harmful in contact with skin.
Inhalation	Harmful if inhaled.
Ingestion	Do not ingest.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Chlorothalonil 1897-45-6	= 10 g/kg (Rat)	> 2500 mg/kg (Rat) > 2000 mg/kg (Rabbit)	= 0.217 mg/L (Rat) 4 h = 0.31 mg/L (Rat) 1 h
Proprietary Solvent	= 4000 mg/kg (Rat)	= 9530 µL/kg (Rabbit)	-

Information on physical, chemical and toxicological effects

Symptoms Please see section 4 of this SDS for symptoms.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen. However, the product as a whole has not been tested.

Chemical Name	ACGIH	IARC	NTP	OSHA
Chlorothalonil 1897-45-6		Group 2B		X

Legend

IARC (International Agency for Research on Cancer)

Group 2B - Possibly Carcinogenic to Humans

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

STOT - single exposure May cause respiratory irritation.

Product Information (Numerical measures of toxicity)

Acute Oral LD50 (Rat): >5,000 mg/kg

Acute Dermal LD50 (Rabbit): >5,000mg/kg

Acute Inhalation LC50 (Rat): >2.02 mg/L (4-hr)

Eye Irritation: Moderately irritating.

Dermal Irritation: Non-irritating.

Dermal Sensitization: Not a skin sensitizer.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic life with long lasting effects. This product is toxic to aquatic invertebrates and wildlife. Do not apply directly to water, or 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 washwater or rinsate. This chemical is known to leach through soil into groundwater under certain conditions as a result of labeled use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Component Information

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Chlorothalonil 1897-45-6	0.57: 72 h <i>Desmodesmus subspicatus</i> mg/L EC50 0.0068: 72 h <i>Pseudokirchneriella subcapitata</i> mg/L EC50 static	0.012: 96 h <i>Oncorhynchus mykiss</i> mg/L LC50 semi-static 0.0076: 96 h <i>Oncorhynchus mykiss</i> mg/L LC50 flow-through 0.0221 - 0.032: 96 h <i>Lepomis macrochirus</i> mg/L LC50 flow-through 0.045 - 0.057: 96 h <i>Lepomis macrochirus</i> mg/L LC50 static		0.0342 - 0.143: 48 h <i>Daphnia magna</i> mg/L EC50 Static
Proprietary Solvent	6500 - 13000: 96 h <i>Pseudokirchneriella subcapitata</i> mg/L EC50	41000: 96 h <i>Oncorhynchus mykiss</i> mg/L LC50 14 - 18: 96 h <i>Oncorhynchus mykiss</i> mL/L LC50 static 27540: 96 h <i>Lepomis macrochirus</i> mg/L LC50 static 40761: 96 h <i>Oncorhynchus mykiss</i> mg/L LC50 static 40000 - 60000: 96 h <i>Pimephales promelas</i> mg/L LC50 static 16000: 96 h <i>Poecilia reticulata</i> mg/L LC50 static	EC50 = 10000 mg/L 16 h EC50 = 620 mg/L 30 min EC50 = 620.0 mg/L 30 min	46300: 48 h <i>Daphnia magna</i> mg/L EC50

Persistence/Degradability

Not determined.

Bioaccumulation

Not determined.

Mobility

Chemical Name	Partition Coefficient
Chlorothalonil 1897-45-6	2.9

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS**Waste Treatment Methods****Disposal of Wastes**

Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, 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 of the nearest EPA Regional Office for guidance.

Contaminated Packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION**DOT**

Package size less than 119 Gallons (450 Lt.): Not regulated

Package size larger than 119 Gallons (450 Lt.):

UN/ID No

UN3082

Proper Shipping Name

Environmentally hazardous substance, n.o.s., liquid (Chlorothalonil)

Hazard Class

9

Packing Group

III

Marine pollutant

IATA**UN/ID No**

UN3082

Proper Shipping Name

Environmentally hazardous substance, n.o.s., liquid (Chlorothalonil)

Hazard Class

6.1

Packing Group

II

Description

Marine Pollutant

IMDG**UN/ID No**

UN3082

Proper Shipping Name

Environmentally hazardous substance, n.o.s., liquid (Chlorothalonil)

Hazard Class

9

Packing Group

III

Marine Pollutant

Marine Pollutant

15. REGULATORY INFORMATION**International Inventories****TSCA**

All ingredients are listed or exempt from listing on Chemical Substance Inventory

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

US Federal Regulations**CERCLA**

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Proprietary Solvent	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS No	Weight-%	SARA 313 - Threshold Values %
Chlorothalonil - 1897-45-6	1897-45-6	52.38-55.62	0.1
Proprietary Solvent	Proprietary	<1	1.0

US State Regulations**California Proposition 65**

This product contains the following Proposition 65 chemicals.

Chemical Name	California Proposition 65
Chlorothalonil - 1897-45-6	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Chlorothalonil 1897-45-6	X	X	X
Proprietary Solvent	X	X	X

EPA Pesticide Registration Number 66222-154**EPA Statement**

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

EPA Pesticide Label

Signal Word: Warning

Causes eye irritation. May cause skin irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Do not get into eyes. Avoid prolonged contact with skin. Avoid breathing spray mist. Do not take internally.

Note to user: This product may produce temporary allergic side effects characterized by redness of the eyes, mild bronchial irritation, and redness or rash on exposed skin areas. Persons having allergic reactions should contact a physician

Difference between SDS and EPA pesticide label

	EPA	OSHA
Signal Word	Warning	Danger
Acute toxicity - Dermal	N/A	May be harmful in contact with skin
Acute toxicity - Inhalation (Dusts/Mists)	N/A	Harmful if inhaled
Skin corrosion/irritation	May cause skin irritation	N/A
Serious eye damage/eye irritation	Causes eye irritation	Causes serious eye irritation
Skin sensitization	Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals	N/A
Carcinogenicity	N/A	Suspected of causing cancer
STOT - single exposure	N/A	May cause respiratory irritation

16. OTHER INFORMATION**NFPA****Health Hazards**

Not determined

Flammability

Not determined

Instability

Not determined

Special Hazards

Not determined

HMIS**Health Hazards**

Not determined

Flammability

Not determined

Physical Hazards

Not determined

Personal Protection

Not determined

Issue Date:

04-Mar-2010

Revision Date:

12-Jan-2016

Revision Note:

Revision 2: Updated format from 30-Sep-2014

Revision 3: Updated format from 27-Oct-2015

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

Armor Tech[®]

TM 462

FUNGICIDE

Liquid Flowable Systemic Turf and Ornamental Fungicide

For control of a broad spectrum of diseases of bedding, flowering, herbaceous and tropical foliage plants, shrubs, trees and flowers, containerized woody shrubs and trees and turfgrass.

ACTIVE INGREDIENT:

Thiophanate-methyl..... 46.2%

OTHER INGREDIENTS:..... 53.8%

TOTAL:..... 100.0%

Contains 4.5 pounds thiophanate-methyl per gallon.

**KEEP OUT OF REACH OF CHILDREN
CAUTION/PRECAUCIÓN**

See inside label booklet for additional **FIRST AID** and **PRECAUTIONARY STATEMENTS**

For Chemical Spill, Leak, Fire, or Exposure, Call CHEMTREC (800) 424-9300.

For Medical Emergencies Only, Call (877) 325-1840.

EPA REG. NO. 228-626

Manufactured for NUFARM AMERICAS INC. • 11901 S. Austin Avenue • Alsip, IL 60803

United Turf Alliance

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION/PRECAUCIÓN**

Causes moderate eye irritation. Harmful if swallowed. Avoid contact with eyes or clothing.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemically resistant to this product are listed below. If you want more options, follow the instructions for Category A on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical resistant gloves made of any waterproof material such as polyvinyl chloride, nitrile rubber or butyl rubber
- Shoes plus socks

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

USER SAFETY REQUIREMENTS

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

Engineering Controls

When handlers use enclosed cabs 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 clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

FIRST AID

IF IN EYES:	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes.• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.• Call a poison control center or doctor for treatment advice.
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none">• Take off contaminated clothing.• Rinse skin immediately with plenty of water for 15 to 20 minutes.• Call a poison control center or doctor for 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 do so by a poison control center or doctor.• Do not give anything by mouth to an unconscious person.
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 by mouth-to-mouth, if possible.• Call a poison control center or doctor for further treatment advice.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-877-325-1840 for emergency medical treatment information.

ENVIRONMENTAL HAZARDS

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water by disposing of equipment wash water.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

For use by individuals/firms licensed or registered by the state to apply ornamental or turf pest control products. Do not apply with fixed wing or rotary aircraft.

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), notification to workers, and restricted-entry interval. The requirements in this box 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.

Exemption: If the product is applied by drenching, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

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 over long-sleeved shirt and long pants,
- Chemical-resistant gloves made of any waterproof material,
- Chemical-resistant footwear plus socks,
- Chemical-resistant headgear for overhead exposures.

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Do not enter or allow others to enter the treated areas without protective clothing until spray has dried.

GENERAL INFORMATION

This product provides broad-spectrum disease control on containerized woody, flowering, herbaceous, and tropical foliage ornamental plants and trees, and turfgrasses.

Add the required amount of this product after shaking well to a partially filled tank agitated by mechanical or hydraulic means then add the remaining required amount of water. Maintain continuous agitation during application to keep the material in suspension. A new spray mixture must be prepared each day; do not use following overnight storage in spray tank.

Make applications of this product with ground equipment, using sufficient spray volume to provide thorough coverage. Do not tank mix this product with copper containing materials or with highly alkaline pesticides such as Bordeaux mixture or lime sulfur. No claim of compatibility with other pesticides is implied. Under conditions of severe disease pressure or when application intervals are shorter than 14 days due to persistent rainfall, use the higher concentration or rates provided in this label. Contact your local State Extension Service specialist for application schedule instructions.

Important: If treatments of this product are ineffective, a tolerant strain of fungus is most likely present. Consult your Nufarm representative or distributor, your local State Agricultural Experiment Station or State Agricultural Extension Service for advice on prompt use of some other labeled fungicide.

CHEMIGATION INSTRUCTIONS

For Ornamental Use Only

Apply this product only through pressurized drench (flood), sprinkler, or drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation systems.

Do not connect chemigation system to a public water system.

Crop injury, lack of effectiveness, or illegal residues in the crop can result from non-uniform distribution of treated water.

If you have questions about calibration, contact your State Extension Service specialists, equipment manufacturers, or other experts.

Do not connect any irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

Should the need arise, a person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments.

Pressurized Drench (Flood) System

Systems utilizing a pressurized water and pesticide injection system must meet the following requirements:

- The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- 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 pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- 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.
- 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.
- Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from backflow if water flow stops.

Sprinkler Chemigation

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

(continued)

- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- 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.
- 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.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

Drip (Trickle) Chemigation

- The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- 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 pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- 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.
- 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.

HORTICULTURAL APPLICATIONS

GREENHOUSE, NURSERY AND LANDSCAPE

This product provides broad-spectrum control of many foliar, stem, and below ground diseases on a wide range of horticultural plants grown or maintained under a variety of conditions. Apply this product 14 to 21 days prior to when a particular disease usually appears and at the very latest, upon first sign of disease. Spray intervals usually range from 7 to 14 days with 14 days being for preventative treatments and the 7-day interval for times when conditions are judged acceptable for disease development. For hard-to-wet foliage, add an acceptable wetting agent to the spray tank to increase product efficacy. Use a spreader-sticker when excessive and repeated foliar wetting occurs. Use this product to control listed diseases on non-commercial fruit and nut trees. Do not use fruit, nuts or sap from trees treated with this product as food or feed.

Note: This product has been determined to be safe for use on the plant types listed in these directions for use based on cumulative data derived from research product trials and historical field use. As all species and cultivars have not been tested, trial applications should be performed if a user wishes to make an application to a plant type not listed on the label but found on a similar use site and for a disease that is listed on the label. To conduct a trial application, apply at least two applications to at least 25 trial plants at the highest concentration, 7 days apart. Evaluate 7 days after

the last application before initiating full-scale application. Do not use this product on the following plants: Swedish Ivy (*Neprolepsis exaltata*) and Easter Cactus (*Hatiora gaertneri*).

Plant Type	Such as but not limited to:
Herbaceous Bedding	Ageratum, Begonia, Canna, Coleus, Dahlia, Dusty Miller, Foxglove, Fuchsia, Geranium, Impatiens, Lavender, Marigold, Pansy, Petunia, Pinks, Primrose, Salvia, Statice, Strawflower, Tickseed, Verbena
Flowering	Chrysanthemum, Hydrangea, Hollyhock, Iris, Lily, Poinsettia
Tropical Foliage	Dieffenbachia, Dracaena, English Ivy, Philodendron, Pothos
Woody Ornamentals	Azalea, Hibiscus, Holly, Ligustrum, Rhododendron, Rose, Pyracantha
Evergreen Trees	Douglas Fir, Fir, Larch, Pine, Spruce
Deciduous Trees*	Ash, London Plane, Maple, Oak, Sycamore, Walnut
Flowering Trees*	Cherry, Crabapple, Hawthorn, Mountain Ash, Pear

*Do not use fruit, nuts or sap from trees treated with this product as food or feed.

FOLIAR SPRAY APPLICATIONS

Hydraulic Application Mixing Instructions

After shaking the product container, add the required amount of this product to a partially-filled spray tank agitated by mechanical or hydraulic means and then add the remaining specified volume of water. Maintain continuous agitation to keep the material in suspension and apply with properly calibrated spray equipment.

Application Concentrations (Mechanical or Hand-Held):

Use the specified amount of this product per 100 gallons of water for the prevention and control of the diseases shown below.

Note: The maximum single application rate for foliar application to ornamentals (excluding cut flowers) is 3.0 pounds thiophanate-methyl active ingredient (85.3 fl. oz. of product) per acre. The maximum application rate for foliar application to ornamentals per crop cycle is 300 pounds thiophanate-methyl active ingredient (66.7 gallons of product) per acre.

The maximum single application rate for application to cut flowers is 0.5 pound thiophanate-methyl active ingredient (14.2 fl. oz. of product) per acre.

FOLIAR DISEASES

Disease(s) Controlled	Concentration of Product fl. oz./100 gals.	Remarks
Anthracnose <i>Colletotrichum</i>	10.75 to 20	Apply as buds break or at first sign of disease. Repeat application at 7- to 14-day intervals as needed during disease period.
Black Spot of Rose <i>Diplocarpon rosae</i>	10.75 to 20	Apply early summer or at first sign of disease. Repeat application every 7 to 14 days as needed during disease period.
Brown Rot and Blight <i>Monilinia, Sclerotini, Whetzellinia</i>	10.75 to 20	Apply late spring or at first sign of disease. Repeat application every 7 to 14 days as needed during the disease period.
Fusicladium and Venturia Leaf Scabs on: Crabapple, Hawthorn, Pear, Mountain Ash, Pyracantha, etc.	10.75 to 20	Apply as buds break. Repeat application every 7 to 14 days during disease period. Effective control requires coverage during leaf expansion. Rotations with chlorothalonil or propiconazole can be utilized.
Leaf Spots and Blights caused by: <i>Ascochyta, Blumeriella, Botrytis, Cercospora, Coccomyces, Corynespora, Curvularia, Didymellina, Entomosporium, Fabraea, Fusarium, Ramularia, Rhizoctonia, Marssoninia, Mycosphaerella, Myrothecium, Phoma, Physalasporea, Schizothyrium, Septoria, Sphaceloma</i>	10 to 14.5	Make applications when disease symptoms first appear. Repeat every 7 to 14 days during disease period. Rotate with chlorothalonil.
Ovulinia Blight	7.25 to 20	Apply as flowers open. Repeat every 7 to 14 days during disease period.
Powdery Mildews <i>Erysiphe, Microsphaera, Phyllactinia, Podosphaera, Oidium, Sphaerotheca</i>	10 to 20	Apply when disease first appears and repeat application every 7 to 14 days. Rotate with other effective products.

(continued)

FOLIAR DISEASES (cont.)

Disease(s) Controlled	Concentration of Product fi. oz./100 gals.	Remarks
Rust Diseases caused by: <i>Puccinia</i> , <i>Gymnosporangium</i> , <i>Uromyces</i>	10.75 to 20	Apply late spring or when symptoms first appear. Repeat application every 7 to 14 days during disease period. Rotate with other effective products.
Tip Blight of Pine <i>Sphaeropsis sapinea</i> , <i>Diplodia pinea</i>	14.5 to 20	Begin applications in the spring when new growth starts. Make a second application just prior to needle emergence from the sheath and a third application 7 days later. Ensure thorough coverage.
Twig Blights, Cankers, and Diebacks <i>Diaporthe</i> , <i>Kabatina</i> , <i>Phoma</i> , <i>Phomopsis</i>	14.5 to 20	Apply when symptoms first appear. Repeat application every 7 to 14 days during disease period.

Adjuvants: Where rainfall and/or overhead irrigation is the norm, use of a compatible spreader/sticker is suggested. Where wetting of foliage is difficult, use a compatible wetting agent. Follow the phytotoxicity precautions described in the "HORTICULTURAL APPLICATIONS" section of this label.

SOIL DRENCH APPLICATIONS

Mixing Instructions: Add the required amount of this product to a partially-filled tank agitated by mechanical or hydraulic means. Add the remaining required amount of water. Maintain continuous agitation throughout application to keep the material in suspension.

Application Concentrations/Rates and Timing for Disease Control: Use 7.5 to 20 fl. oz. of this product per 100 gallons of water. Apply as a drench or heavy spray at the rate of 0.5 to 2 pints per square foot (100 gallons per 400 to 1,600 square feet). For small pots and shallow flats up to 4 inches in size, apply at 1 pint per square foot. For containers and pots 4 inches or larger, refer to the following table for the volume to apply. Make repeat applications at 4- to 8-week intervals depending on disease presence and conditions for disease development.

Container Type	Volume of Spray Mix to Apply to Each Container	
	1 pt./sq. ft. Rate	2 pts./sq. ft. Rate
4 inch	2 fl. oz.	
5 inch	2.5 fl. oz.	
6 inch		6.5 fl. oz.
7 inch		8.5 fl. oz.
8 inch		11 fl. oz.
9 inch		14 fl. oz.
10 inch		17.5 fl. oz.

For containers larger than 10 inches, apply in a drench volume of 2.5 to 3 pints per square foot of surface area.

Plant Types: Containerized woody shrubs, trees, herbaceous/bedding, flowering, and tropical foliage plants and flowers and bedding plants in the landscape.

Note: Do not apply this product to plug trays or seedling flats at time of seeding.

Soil Diseases Controlled: *Botrytis*, *Cylindrocladium*, *Fusarium*, *Gliocladium*, *Myrothecium*, *Penicillium*, *Ramularia*, *Rhizoctonia*, *Sclerotinia* and *Thielaviopsis*.

Note: *Pythium*, *Phytophthora* and *Cylindrocladium spathiphylli* are not controlled by this product.

PLANT DIP TREATMENT

Mixing Instructions: Mix as described in the "FOLIAR" and "SOIL DRENCH APPLICATIONS" sections of this label. Maintain continuous agitation during application.

Application Concentration and Dipping Time

Plants or Cuttings: Use 14.5 to 21.5 fl. oz. of this product per 100 gallons of water. Immerse plants or cuttings for 10 to 15 minutes, remove and allow to drain and dry. Wear protective clothing as described under the "PERSONAL PROTECTIVE EQUIPMENT" section of this label.

Bulbs, Corms, Tubers and Rhizomes: Use 14.5 to 33 fl. oz. of this product per 100 gallons of water or 2 teaspoons of this product per gallon of water. Soak cleaned bulbs for 15 to 30 minutes in warm dip (80 to 85°F) within 48 hours of digging. Dry bulbs after treatment. If bulbs are for forcing, treat bulbs that have been heat-cured.

Plant Types: Plants, cuttings, cane sections of woody herbaceous, flowering and tropical foliage plants. Bulbs, corms, tubers, and rhizomes of plants such as but not limited to Caladium, Easter Lily, Tulip, Gladiolus, Daffodil, Iris.

Diseases Controlled: *Botrytis*, *Cylindrocladium*, *Fusarium*, *Gliocladium*, *Myrothecium*, *Penicillium*, *Ramularia*, *Rhizoctonia*, *Sclerotinia*, *Thielaviopsis*.

TURF APPLICATIONS

For use only by certified applicators or those under their immediate supervision. Do not apply with fixed wing or rotary aircraft. Not for use on turf being grown for sale or other commercial use as sod.

Use this product against certain foliar and soil diseases for use on all turf types such as golf course greens, tees and fairways, athletic fields, cemeteries, parks, and commercial and home lawns. Use this product both preventatively and curatively and is not phytotoxic. Do not use this product on turf being grown for sale or other commercial uses as sod.

Mixing Instructions: Add the required amount of this product to a partially-filled tank agitated by mechanical or hydraulic means. Add the remaining required amount of water. Maintain continuous agitation to keep the material in suspension. For best results, use spray mixture the same day it is prepared.

Turf Types: All cool season and warm season grasses (such as but not limited to Bentgrasses, Bermudagrasses, Bluegrasses, Fescues, Ryegrasses, St. Augustinegrasses and Zoysiagrasses) or their mixtures.

Disease(s) Controlled	Rate of Product fl. oz./1,000 sq. ft.**	Remarks
Anthracnose <i>Colletotrichum graminicola</i>	1.75 to 3.5 (3.5 to 5.33)*	Apply when disease first appears. Make additional applications at 14-day intervals as needed. Allow spray to dry on leaves with no "watering in".
Ascochyta Leaf Blight <i>Ascochyta</i> spp. Dollar Spot <i>Sclerotinia homoeocarpa</i> , <i>Moellerodiscus</i> spp., <i>Lanzia</i> spp. Copper Spot <i>Gloeocerospora sorghi</i> Brown Patch and Zoysia Patch <i>Rhizoctonia solani</i> Fusarium Patch <i>Fusarium nivale</i> Red Thread <i>Laetisaria fusiformis</i>	1.75 to 3.5	Apply when disease first appears. Make additional applications at 14-day intervals as needed. Allow spray to dry on leaves with no "watering in".
Pink Snow Mold <i>Microdochium nivale</i> (Only for those areas where snow cover is not present the entire winter)	1.75 to 3.5	Apply this product in middle to late November before turf has stopped all growth activity. Lightly water application into the root zone for best results. For best results, use a spreader-sticker. Second spray should dry on leaf surfaces with no "watering-in". Minimum spray interval is 14 days.
Gray Leaf Spot <i>Pyricularia grisea</i>	3.5 to 5.33	Apply when conditions are favorable for disease development. Continue applications at 14-day intervals. Allow spray to dry on leaves with no "watering-in".

(continued)

Disease(s) Controlled	Rate of Product fl. oz./1,000 sq. ft.**	Remarks
Summer Patch <i>Magnaportha poae</i>	3.5 to 5.33	For preventative treatment, make 3 applications at 21-day intervals beginning in early May. Water product into the root zone thoroughly after application. For suppression, apply two applications at 14-day intervals beginning when disease first appears.
Cool Season Brown Patch <i>Rhizoctonia cerealis</i> Fusarium Blight <i>Fusarium</i> spp. Necrotic Ring Spot and Spring Dead Spot <i>Leptosphaeria korrae</i>	3.5 to 5.33	Make two applications at 14-day intervals beginning when disease first appears.
Stripe Smut <i>Ustilago striformis</i>	3.5 to 5.33	Make two applications at 14-day intervals when disease first appears. Water product into the root zone after application. For prevention, apply in the spring (just before grass begins growth), and in the fall.
Bermudagrass Decline <i>Gaeumannomyces graminis</i> var. <i>graminis</i> Take-All Patch <i>Gaeumannomyces graminis</i> var. <i>avenae</i>	3.5 to 5.33	Make applications in Mid-July or when disease symptoms first appear. Repeat applications at 14-day intervals. Use higher rates under severe disease pressure. Water product into root zone.
Coprinus Snow Mold <i>Coprinus psychromorbidus</i>	3.5 to 5.33	Make 2 applications at 21-day intervals starting in late fall to early winter. Make the last application just prior to first permanent snow cover.
Leaf Spot <i>Drechsler</i> spp. Leaf Crown & Root Diseases <i>Bipolaris</i> , <i>Curvalria</i> , <i>Exserohilum</i> Rusts <i>Puccinia</i> spp., <i>Uromyces</i> spp.	3.5 to 5.33	Start applications when disease first appears and at 14-day intervals as needed.
Bentgrass Dead Spot <i>Ophiosphaerella agrostis</i>	3.5 to 5.33	Based on the local Extension Service instructions, start applications in early June to prevent bentgrass dead spot and every 14 days as needed.

*Use 3.5 to 5.33 fl. oz. rate for curative response to Basal Stem Anthracnose.

**Refer to the "Use Sites and Maximum Application Rates" table to determine allowable rates for each application.

Turf Application Directions

Apply this product uniformly over the area to be treated with a properly calibrated power sprayer. Apply after mowing or avoid mowing for 12 hours after application. Apply sufficient water to obtain thorough coverage, usually 1.5 to 2.5 gallons per 1,000 sq. ft. of turf area. When treating golf greens, always treat aprons and approaches to golf greens. The minimum retreatment interval for turf applications is 14 days.

Use Sites and Maximum Application Rates

Site	Maximum Single Application Rate fl. oz./1,000 sq. ft.	Maximum Seasonal Application Rate fl. oz./1,000 sq. ft.
Golf Course Greens, Tees and Aprons	5.33	14.25
Golf Course Fairways (Except Florida)	3.5	3.5
Golf Course Fairways (Florida Only)	1.75	1.75
Residential and Public Areas (home lawns, parks, athletic fields, schools, day care centers)	1.75	7

**Note to User: Do not graze animals on treated turf.
Do not feed clippings to livestock or poultry.
Shake well before using.**

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store in original container in a dry, temperature controlled area.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be used 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: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. Clean container 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 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.

WARRANTY DISCLAIMER

THE DIRECTIONS FOR USE OF THIS PRODUCT MUST BE FOLLOWED CAREFULLY. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, (1) THE GOODS DELIVERED TO YOU ARE FURNISHED "AS IS" BY MANUFACTURER OR SELLER AND (2) MANUFACTURER AND SELLER MAKE NO WARRANTIES, GUARANTEES, OR REPRESENTATIONS OF ANY KIND TO BUYER OR USER, EITHER EXPRESS OR IMPLIED, OR BY USAGE OF TRADE, STATUTORY OR OTHERWISE, WITH REGARD TO THE PRODUCT SOLD, INCLUDING, BUT NOT LIMITED TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, USE, OR ELIGIBILITY OF THE PRODUCT FOR ANY PARTICULAR TRADE USAGE. UNINTENDED CONSEQUENCES, INCLUDING BUT NOT LIMITED TO INEFFECTIVENESS, MAY RESULT BECAUSE OF SUCH FACTORS AS THE PRESENCE OR ABSENCE OF OTHER MATERIALS USED IN COMBINATION WITH THE GOODS, OR THE MANNER OF USE OR APPLICATION, INCLUDING WEATHER, ALL OF WHICH ARE BEYOND THE CONTROL OF MANUFACTURER OR SELLER AND ASSUMED BY BUYER OR USER. THIS WRITING CONTAINS ALL OF THE REPRESENTATIONS AND AGREEMENTS BETWEEN BUYER, MANUFACTURER AND SELLER, AND NO PERSON OR AGENT OF MANUFACTURER OR SELLER HAS ANY AUTHORITY TO MAKE ANY REPRESENTATION OR WARRANTY OR AGREEMENT RELATING IN ANY WAY TO THESE GOODS.

LIMITATION OF LIABILITY

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO EVENT SHALL MANUFACTURER OR SELLER BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, OR FOR DAMAGES IN THEIR NATURE OF PENALTIES RELATING TO THE GOODS SOLD, INCLUDING USE, APPLICATION, HANDLING, AND DISPOSAL. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, MANUFACTURER OR SELLER SHALL NOT BE LIABLE TO BUYER OR USER BY WAY OF INDEMNIFICATION TO BUYER OR TO CUSTOMERS OF BUYER, IF ANY, OR FOR ANY DAMAGES OR SUMS OF MONEY, CLAIMS OR DEMANDS WHATSOEVER, RESULTING FROM OR BY REASON OF, OR ARISING OUT OF THE MISUSE, OR FAILURE TO FOLLOW LABEL WARNINGS OR INSTRUCTIONS FOR USE, OF THE GOODS SOLD BY MANUFACTURER OR SELLER TO BUYER. ALL SUCH RISKS SHALL BE ASSUMED BY THE BUYER, USER, OR ITS CUSTOMERS. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BUYER'S OR USER'S EXCLUSIVE REMEDY, AND MANUFACTURER'S OR SELLER'S TOTAL LIABILITY SHALL BE FOR DAMAGES NOT EXCEEDING THE COST OF THE PRODUCT.

IF YOU DO NOT AGREE WITH OR DO NOT ACCEPT ANY OF DIRECTIONS FOR USE, THE WARRANTY DISCLAIMERS, OR LIMITATIONS ON LIABILITY, DO NOT USE THE PRODUCT, AND RETURN IT UNOPENED TO THE SELLER, AND THE PURCHASE PRICE WILL BE REFUNDED.

RV110413

ArmorTech is a registered trademark of United Turf Alliance LLC.

All trademarks that appear on this label which are not owned by Nufarm Americas Inc. or its subsidiaries are the property of their respective owners.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: ArmorTech™ 462 Fungicide

EPA Reg. No.: 228-626

Product Type: Fungicide

Company Name: Nufarm Americas Inc.
11901 S. Austin Avenue
Alsip, IL 60803
1-800-345-3330

Telephone Numbers: For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident,
Call CHEMTREC Day or Night: 1-800-424-9300
For Medical Emergencies Only, Call 1-877-325-1840

This product is an EPA FIFRA registered pesticide. Some classifications on this SDS are not the same as the FIFRA label. Certain sections of this SDS are superseded by federal law governed by EPA for a registered pesticide. Please see Section 15. REGULATORY INFORMATION for explanation.

2. HAZARDS IDENTIFICATION

HEALTH HAZARDS:

Acute toxicity, oral	Category 4
Acute toxicity, inhalation	Category 4
Eye irritation	Category 2B
Skin irritation	Category 2
Specific target organ toxicity – Repeated exposure	Category 2

ENVIRONMENTAL HAZARDS:

Hazardous to aquatic environment, acute	Category 2
---	------------

SIGNAL WORD:

WARNING

HAZARD STATEMENTS:

Harmful if swallowed or inhaled. Causes eye and skin irritation. May cause damage to organs (mild anemia and affect the liver and thyroid) through prolonged or repeated exposure. Toxic to aquatic life.

**PRECAUTIONARY STATEMENTS**

Harmful if swallowed. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. If swallowed, call a poison control center or doctor if you feel unwell. Rinse mouth. Dispose of contents and container in accordance with local and state regulations.

Avoid breathing mist, vapor, or spray. Use only outdoors or in a well-ventilated area. If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

Wash thoroughly after handling. Wear chemical goggles or shielded safety glasses. If in eyes: Hold eye open and rinse slowly and gently with water for 15 to 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.

Wash thoroughly after handling. Wear chemical resistant gloves. If on skin, take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice. If skin irritation occurs, get medical attention. Take off contaminated clothing and wash it before reuse.

Do not breathe mist, vapor or spray. Get medical advice/attention if you feel unwell.

SAFETY DATA SHEET**3. COMPOSITION / INFORMATION ON INGREDIENTS**

COMPONENT	CAS NO.	% BY WEIGHT
Thiophanate-methyl	23564-05-8	46.2
Other Ingredients including: Propylene Glycol	57-55-6	53.8

Synonyms: Thiophanate-methyl; T-Methyl; dimethyl [(1,2-phenylene)bis (iminocarbonothioyl)]

4. FIRST AID MEASURES

If in Eyes: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If on Skin or Clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

If Swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

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

5. FIRE FIGHTING MEASURES

Extinguishing Media: Recommended for large fires: foam or water spray. Recommended for small fires: dry chemical or carbon dioxide.

Special Fire Fighting Procedures: Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full fire-fighting turn out gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.

Unusual Fire and Explosion Hazards: If water is used to fight fire, contain runoff, using dikes to prevent contamination of water supplies. Dispose of fire control water later.

Hazardous Decomposition Materials (Under Fire Conditions): May produce oxides of carbon, nitrogen and sulfur.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

Environmental Precautions: Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.

Methods for Containment: Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.

Methods for Cleanup and Disposal: Pump any free liquid into an appropriate closed container. Collect washings for disposal. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.

Other Information: Large spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

7. HANDLING AND STORAGE**HANDLING:**

Avoid contact with eyes or clothing. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing/Personal Protective Equipment (PPE) immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

STORAGE:

Store in original container in a dry, temperature controlled area. Do not contaminate water, food, or feed by storage or disposal.

SAFETY DATA SHEET**8. EXPOSURE CONTROLS / PERSONAL PROTECTION****Engineering Controls:**

Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation.

Personal Protective Equipment:

Eye/Face Protection: Not normally required. To avoid contact with eyes, wear chemical goggles or shielded safety glasses. An emergency eyewash or water supply should be readily accessible to the work area.

Skin Protection: Applicators and other handlers must wear long pants and long-sleeved shirt, shoes plus socks, and chemical-resistant gloves made of any waterproof material such as polyvinyl chloride, nitrile rubber or butyl rubber. An emergency shower or water supply should be readily accessible to the work area.

Respiratory Protection: Not normally required. If vapors or mists exceed acceptable levels, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for use against pesticides.

General Hygiene Considerations: Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored; 2) wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

Exposure Guidelines:

Component	OSHA		ACGIH		Unit
	TWA	STEL	TWA	STEL	
Thiophanate-methyl	NE	NE	NE	NE	
Propylene Glycol	10 (WEEL)	NE	NE	NE	mg/m ³

NE = Not Established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Opaque liquid
Odor:	No data available
Odor threshold:	No data available
pH:	5-6 (1% solution)
Melting point/freezing point:	No data available
Initial boiling point and boiling range	No data available
Flash point:	Not applicable due to aqueous formulation
Evaporation rate:	No data available
Flammability (solid, gas):	No data available
Upper/lower flammability or explosive limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
Relative density:	1.208 g/ml @ 20° C
Solubility(ies):	Dispersible
Partition coefficient: n-octanol/water:	No data available
Autoignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	273.358 cStk @ 20° C

Note: Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

10. STABILITY AND REACTIVITY

Chemical Stability: This material is stable under normal handling and storage conditions.

Conditions to Avoid: Excessive heat. Do not store near heat or flame.

Incompatible Materials: Strong oxidizing agents: bases and acids.

Hazardous Decomposition Products: Under fire conditions may produce oxides of carbon, nitrogen and sulfur.

Hazardous Reactions: Hazardous polymerization will not occur.

SAFETY DATA SHEET

11. TOXICOLOGICAL INFORMATION

Potential Health Effects:

Likely Routes of Exposure: Inhalation, ingestion, eye and skin contact.

Eye Contact: Mildly irritating based on toxicity studies.

Skin Contact: Minimally toxic and slightly irritating based on toxicity studies.

Ingestion: Slightly toxic if ingested based on toxicity studies.

Inhalation: Low inhalation toxicity based on toxicity studies.

Medical Conditions Aggravated by Exposure: Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Skin contact may aggravate existing skin disease.

Toxicological Data:

Data from laboratory studies conducted on a similar, but not identical, formulation:

Oral: Rat LD₅₀: 1,750 mg/kg (female) (estimated based on mortalities for doses tested)

Dermal: Rat LD₅₀: >5,000 mg/kg

Inhalation: Rat 4-hr LC₅₀: >2.05 mg/L

Eye Irritation: Rabbit: Mildly irritating

Skin Irritation: Rabbit: Slightly irritating

Skin Sensitization: Not a contact sensitizer in guinea pigs following repeated skin exposure.

Subchronic (Target Organ) Effects: Repeated overexposure to thiophanate methyl may cause mild anemia and affect the liver and thyroid. Overexposure to propylene glycol has been associated with kidney toxicity, liver toxicity (animals) and lactic acidosis. Very high dose acute exposure may result in CNS and cardiac effects.

Carcinogenicity / Chronic Health Effects: Prolonged overexposure to thiophanate methyl may affect the liver and thyroid. Thiophanate methyl produced dose-dependent increases in benign liver tumors in mice and thyroid tumors in rats. Overexposure to propylene glycol has been associated with kidney toxicity, liver toxicity (animals) and lactic acidosis.

Reproductive Toxicity: Thiophanate methyl did not cause reproductive toxicity in multi-generation studies in rats. In the mouse, propylene glycol was not a reproductive toxicant.

Developmental Toxicity: In a rabbit study with thiophanate methyl, slight skeletal variations and decreased fetal weights were observed at doses that were also toxic to mother animals. In a series of animal studies, propylene glycol was not a developmental toxicant.

Genotoxicity: There have been some positive and some negative studies, but the weight of evidence is that thiophanate methyl is not mutagenic. Propylene glycol was consistently nonmutagenic.

Assessment Carcinogenicity: None listed with ACGIH, IARC, NTP or OSHA.

12. ECOLOGICAL INFORMATION

Environmental Hazards:

Runoff from treated areas may be hazardous to aquatic organisms in neighboring areas

Ecotoxicity:

Data on Thiophanate Methyl Technical:

96-hour LC ₅₀ Bluegill:	>41 ppm	Bobwhite Quail 8-day Dietary LC ₅₀ :	>10,000 ppm
96-hour LC ₅₀ Rainbow Trout:	11 ppm	Mallard Duck Oral LD ₅₀ :	4,640 mg/kg
48-hour EC ₅₀ Daphnia:	5.4 ppm	48-hour Honey Bee Contact LD ₅₀ :	>100 µg/bee
96-hour LC ₅₀ Mysid:	1.1 ppm		

Environmental Fate:

Thiophanate methyl degrades primarily to MBC whether on foliage, in soil or in water in a matter of days. Both photolysis and hydrolysis are important routes of degradation. MBC is microbially degraded, but stable to aqueous photodegradation, stable to hydrolysis at pH values ranging from 5 to 7 and stable to soil photolysis. Metabolism under aerobic and anaerobic conditions in both soil and water proceeds at a slow rate. Under application conditions, average half-lives are about 20 to 50 days, but may be as short as a few days with repeated use.

SAFETY DATA SHEET**13. DISPOSAL CONSIDERATIONS****Waste Disposal Method:**

Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be used 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 Handling and Disposal:

Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. Clean container 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 ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

14. TRANSPORTATION INFORMATION

Follow the precautions indicated in Section 7: HANDLING AND STORAGE of this SDS.

DOT:

< 2 gallons per completed package

Non Regulated

≥ 2 gallons but < 119 gallons per completed package

UN 3082, Environmentally hazardous substances, liquid, n.o.s., 9, III, (thiophanate-methyl), RQ

≥ 119 gallons per completed package

UN 3082, Environmentally hazardous substances, liquid, n.o.s., 9, III, (thiophanate-methyl), RQ, Marine Pollutant,

IMDG

UN 3082, Environmentally hazardous substances, liquid, n.o.s., 9, III, (thiophanate-methyl), Marine Pollutant

IATA

Non Regulated

15. REGULATORY INFORMATION**EPA FIFRA INFORMATION**

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

CAUTION. Causes moderate eye irritation. Harmful if swallowed. Avoid contact with eyes or clothing.

U.S. FEDERAL REGULATIONS

TSCA Inventory: This product is exempted from TSCA because it is solely for FIFRA regulated use.

SARA Hazard Notification/Reporting:

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370.66):

Immediate and Delayed

Section 313 Toxic Chemical(s):

Thiophanate Methyl (CAS No. 23564-05-8) 46.2% by weight in product.

Reportable Quantity (RQ) under U.S. CERCLA:

Thiophanate Methyl (CAS No. 23564-05-8) 10 pounds

RCRA Waste Code:

Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

State Information:

Other state regulations may apply. Check individual state requirements.

California Proposition 65: WARNING. This product contains chemicals known to the State of California to cause cancer or birth defects or other reproductive harm.]

SAFETY DATA SHEET**16. OTHER INFORMATION****National Fire Protection Association (NFPA) Hazard Rating:****Rating for this product: Health: 1 Flammability: 1 Reactivity: 0**

Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of Federal law to use a pesticide product in any manner not prescribed on the EPA-accepted label.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Nufarm Americas Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Nufarm Americas Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS AND ALL SUCH WARRANTIES ARE HEREBY SPECIFICALLY DISCLAIMED.

Date of Issue: October 31, 2014**Supersedes:** January 28, 2014