

Mastercop®

COPPER SULFATE
PENTAHYDRATE

GROUP

M1

FUNGICIDE



ADAMA

BACTERICIDE**/FUNGICIDE

FOR USE IN LISTED CITRUS, VEGETABLES, TREE CROPS, TOBACCO, SMALL FRUITS, VINES AND FIELD CROPS.

Active Ingredient:

Copper sulfate pentahydrate*†. 21.46%

Other Ingredients: 78.54%

Total. 100.00%

*CAS No. 7758-99-8

Contains 2.15 lbs. copper sulfate pentahydrate per gallon

Contains 0.54 lbs. metallic copper per gallon

†Metallic copper content 5.4%

**For Non-Public Health Bacteria

EPA Reg. No. 55272-18 -66222

EPA Est. No. 55272-MEX -2; 55272-MEX -1

KEEP OUT OF REACH OF CHILDREN DANGER/PELIGRO

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.)

FIRST AID

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. 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 a poison control center or doctor. Do not give anything by mouth to an unconscious person.

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

If 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.

Note to Physician: Probable Mucosal damage may contraindicate the use of gastric lavage.

Have the product container or label with you when calling a poison control center, doctor, or going for treatment. For emergency medical treatment information, call 24-hours a day to 1-877-250-9291.

In case of spills, fires, leaks or accidents call 1-800-535-5053.

For additional Precautionary Statements, handling, Directions for Use, (and Storage and Disposal), see inside of this booklet.

How can we help? 1-866-406-6262



Escanear para Español

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
DANGER/PELIGRO

Corrosive. Causes irreversible eye damage. **DO NOT** get in eyes or on clothing. Wear protective eyewear such as goggles, face shield, or safety glasses. Harmful if swallowed, absorbed through skin, or inhaled. Avoid contact with skin, eyes or clothing. Avoid breathing vapor or spray mist. Remove and wash contaminated clothing before reuse.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Mixers, loaders, applicators, and other handlers must wear the following:

- protective eyewear such as goggles, face shield, or safety glasses,
- long-sleeve shirt,
- long pants,
- chemical resistant gloves made of any waterproof material such as polyvinyl chloride (PVC) \geq 14 mils, nitrile rubber \geq 14 mils or butyl rubber \geq 14 mils.
- shoes plus socks.

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 material that have been drenched or heavily contaminated with the product's concentrate. **DO NOT** reuse them.

ENGINEERING CONTROL STATEMENTS

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.607(d-f)], the handler PPE requirements may be reduced or modified as specified in the WPS.

RESTRICTION: Pilots must use an enclosed cab that meets the definition listed in the WPS for agricultural pesticides [40 CFR 170.305].

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.
- 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 pesticide is toxic to fish and aquatic invertebrates and may contaminate water through runoff. This product has a potential for runoff for several months or more after application. Poorly draining soils and soils with shallow water tables are more prone to produce runoff that contains this product. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas.

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 or rinsate.

DO NOT discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. **DO NOT** discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

DIRECTIONS FOR USE

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

DO NOT apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

READ THE ENTIRE LABEL BEFORE USING THIS PRODUCT! This label must be in the possession of the user at the time of pesticide application.

AGRICULTURAL USE REQUIREMENTS

Use this product 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, greenhouses and handlers of agricultural insecticides. 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 of 48 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 soil or water, is

- Coveralls,
- Shoes plus socks,
- Chemical-resistant gloves made of any waterproof material, and
- Protective eyewear.

Applications may be made up to the day of harvest; pre-harvest (PHI) interval is 0 days.

NON AGRICULTURAL USE REQUIREMENTS

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

Keep children, pets and other unprotected persons out of treated area until sprays have dried.

PRODUCT INFORMATION

Mastercop® is a fungicide and bactericide** to be applied as an aerial, ground-dilute or ground-concentrate spray unless specifically directed otherwise in the specific crop use directions. The per acre use rate of Mastercop is applicable for both dilute and concentrate sprays. Complete coverage is essential to assure good product performance. The required amount of product must be mixed with enough water to thoroughly cover the crop with spray mixture and be applied to the point of runoff. The volume of water per acre will differ depending on the specific crop and the equipment used. See Mastercop label for specific rates and timing of application for each crop. Use the higher rates and shorter treatment intervals when conditions favor high disease pressure. Use the higher rates for large trees or mature crop plants.

RESISTANCE MANAGEMENT

Mastercop contains a Group M1 fungicide. Fungal isolates/bacterial strains with acquired resistance to Group M1 may eventually dominate the fungal/bacterial population if Group M1 fungicides/bactericides** are used repeatedly in the same field or in successive years as the primary method of control for targeted species. This may result in partial or total loss of control of those species by Mastercop or other Group M1 fungicides.

For resistance management, Mastercop contains a Group M1 fungicide/bactericide**. Any fungal/bacterial population may contain individuals naturally resistant to Mastercop and other Group M1 fungicides/bactericides**. A gradual or total loss of pest control may occur over time if these fungicides/bactericides** are used repeatedly in the same fields. Appropriate resistance-management strategies should be followed.

To delay fungicide/bactericide** resistance take one or more of the following steps:

- Rotate the use of Mastercop or other Group M1 fungicides with other mode of actions fungicides/bactericides** within a growing season sequence with different groups that control the same pathogens.
- Use tank mixtures with fungicide/bactericides** from a different group that are equally effective on the target pest when such use is permitted. Use at least the minimum application rate as labeled by the manufacturer.
- Adopt an integrated disease management program for fungicide/bactericide** use that includes scouting, uses historical information related to pesticide use, and crop rotation, and which considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.
- Where possible, make use of predictive disease models to effectively time fungicide/bactericide** applications. Note that using predictive models alone is not sufficient to manage resistance.
- Monitor treated fungal/bacterial populations for resistance development.
- Contact your local extension specialist or certified crop advisor for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.
- For further information or to report suspected resistance contact ADAMA at 1-866-406-6262. You can also contact your pesticide distributor or university extension specialist to report resistance.

SPRAY DRIFT MANAGEMENT

A variety of factors including weather conditions (e.g., wind direction, wind speed, temperature, and relative humidity) and method of application (e.g., ground, aerial, airblast, chemigation) can influence pesticide drift. The applicator must evaluate all factors and make appropriate adjustments when applying this product.

Aerial Applications:

- **DO NOT** release spray at a height greater than 10 feet above the vegetative canopy or water, unless a greater application height is necessary for pilot safety.
- Applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- **DO NOT** apply when wind speed exceeds 15 mph at the application site. If the windspeed is greater than 10 mph, the boom length must be 65% or less of the wingspan for fixed wing aircraft and 75% or less of the rotor diameter for helicopters. Otherwise, the boom length must be 75% or less of the wingspan for fixed-wing aircraft and 90% or less of the rotor diameter for helicopters.
- Applicators must use 1/2 swath displacement upwind at the downwind edge of the application area.
- **DO NOT** apply during temperature inversions.

Ground Boom Applications:

- Apply with the spray release height recommended by the manufacturer, but no more than 4 feet above the ground or crop canopy.
- Applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- **DO NOT** apply when wind speeds exceed 15 miles per hour at the application site.
- **DO NOT** apply during temperature inversions.

Equipment

All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers or surrogates.

Additional requirements for aerial applications:

- When applications are made with a crosswind, the swath must be displaced downwind. The applicator must compensate for this displacement at the up and downwind edge of the application area by adjusting the path of the aircraft upwind.

Other State and Local Requirements

Applicators must follow all state and local pesticide drift requirements regarding application of copper compounds. Where states have more stringent regulations, they must be observed.

SPRAY DRIFT ADVISORIES

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT. BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

IMPORTANCE OF DROPLET SIZE

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

Controlling Droplet Size – Ground Boom

- Volume - Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure - Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- Spray Nozzle - Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

Controlling Droplet Size – Aircraft

- Adjust Nozzles - Follow nozzle manufacturers recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.

BOOM HEIGHT – Ground Boom

Use the lowest boom height that is compatible with the spray nozzles that will provide uniform coverage.

For ground equipment, the boom should remain level with the crop and have minimal bounce.

RELEASE HEIGHT - Aircraft

Higher release heights increase the potential for spray drift. When applying aerially to crops, **DO NOT** release spray at a height greater than 10 ft. above the crop canopy, unless a greater application height is necessary for pilot safety.

SHIELDED SPRAYERS

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

TEMPERATURE AND HUMIDITY

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

TEMPERATURE INVERSIONS

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or 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. Avoid applications during temperature inversions.

WIND

Drift potential generally increases with wind speed. **AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.**

Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

PLANT SAFETY

As plant varieties of stone fruit, pome fruits, grapes, and cucurbits differ in sensitivity to copper, always evaluate injury potential to Mastercap prior to treating orchards or fields.

GENERAL CHEMIGATION INSTRUCTIONS

Apply this product only through one or more of the following types of systems: Sprinkler including center pivot, lateral move, end row, side (wheel) roll, traveler, big gun, solid set or hand move: flood (basin); furrow; border or drip (trickle) irrigation and system(s). **DO NOT** apply this product through any other type of irrigation systems.

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

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

DO NOT connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label prescribed safety device for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise. Posting areas to be chemigated is required when 1) any part of a treated area is within 300 feet of sensitive areas such as residential areas, labor camps, businesses, day care centers, hospitals, in-patient clinics, nursing homes or any public areas such as schools, parks, playgrounds or other public facilities not including public roads, or 2) when chemigated area is open to the public such as golf courses or retail greenhouses.

Posting must conform to the following requirements. Treated areas shall be posted with signs at all usual points of entry and along likely routes of approach from the listed sensitive area. When there are no usual points of entry, signs must be posted in the corners of the treated areas and in English. Signs must be posted prior to application and must remain posted until foliage has dried and soil surface water has disappeared. Signs may remain in place indefinitely as long as they are composed of materials to prevent deterioration and maintain legibility for the duration of the posting period.

All words shall consist of letters of at least 2 ½ inches tall, and all letters and the symbol shall be in a color which sharply contrasts with their immediate background. At the top of the sign shall be the words KEEP OUT, followed by an octagonal stop sign symbol at least 8 inches in diameter containing the word STOP. Below the symbol shall be the words PESTICIDES IN IRRIGATION WATER.

This sign is in addition to any sign posted to comply with the Workers Protection Standard.

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional, reduced pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete break (air gap) between the flow outlet end of the fill pipe and the top of the overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of liquid back toward the injection.

The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where the pesticide distribution is adversely affected. Systems must use a metering pump, such as a positive displacement injection pump (i.e. 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.

When mixing, agitation is not necessary. Adjust the pH of the water to 7 or below. If using stickers, spreaders, insecticides, nutrients, etc., add Mastercop first. If compatibility is in question, use a compatibility jar test before mixing a whole tank. Because of a wide variety of possible combinations which can be encountered, observe all cautions and limitations on the label of all products used in the mixtures.

Mastercop may be added through a traveling system continuously or at the last 30 minutes of solid set or hand moved irrigation systems. Mastercop readily disperses and needs no agitation.

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 back flow.

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 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 pump (i.e., 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.

When mixing, agitation is not necessary. Adjust the pH of the carrier water to 7 or below. If using stickers, spreaders, insecticides, nutrients, etc., add the Mastercop first. If compatibility is in question, use a compatibility jar test before mixing a whole tank. Because of a wide variety of possible combinations which can be encountered, observe all cautions and limitations on the label of all products used in the mixtures.

Mastercop may be added through a traveling irrigation system or at the last 30 minutes of solid set or hand moved irrigation systems. Mastercop readily disperses and needs no agitation.

FLOOR (BASIN), FURROW AND BORDER CHEMIGATION

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 back flow if water flow stops.

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

- a. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination back flow.
- b. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of liquid back toward the injection pump.
- c. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- d. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- e. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- f. Systems must use a metering pump, such as a positive displacement pump (i.e. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

When mixing, agitation is not necessary. Adjust the pH of the carrier water to 7 or below. If using stickers, spreaders, insecticides, nutrients, etc., add the Mastercop first. If compatibility is in question, use a compatibility jar test before mixing a whole tank. Because of a wide variety of possible combinations which can be encountered, observe all cautions and limitations on the labels of all products used on the mixtures.

Mastercop may be added through a traveling irrigation system continuously or at the last 30 minutes of solid set or hand moved irrigation systems. Mastercop readily disperses and needs no agitation.

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 back flow.

The pesticide injection pipeline must contain a functional, automatic, quick closing check valve to prevent the flow of liquid 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 pump 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 (i.e. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

When mixing, agitation is not necessary. Adjust the pH of the carrier water to 7 or below. If using stickers, spreaders, insecticides, nutrients, etc, add the Mastercop first. If compatibility is in question, use a compatibility jar test before mixing a whole tank. Because of a wide variety of possible combinations which can be encountered, observe all cautions and limitations on the label of all products used in the mixtures. Mastercop may be added through a traveling irrigation system continuously or at the last 30 of solid set or hand moved irrigation systems. Mastercop readily disperses and needs no agitation.

FOR SPRAY AND SOIL DRENCH APPLICATIONS

Always spray for total foliage coverage. When re-spraying the rates and severity of the disease vary with unforeseen conditions. However, in the event of severe disease, spraying intervals can be shortened to 3 to 5 days. At times, lower rates can be as effective as higher rates and should be tried first. Usually, preventive programs may be maintained at lower rates. Use of low volume spraying is effective against Botrytis and not effective against established powdery mildew and Xanthomonas infections. Also, applications on actively growing tissue may be more effective than applications on dormant tissue.

SPECIAL PRECAUTIONS

Except as specified, begin applications before or at first sign of disease and repeat as needed to maintain control but observe use limitations. Maximum application is for a crop cycle. Crop cycle is defined as prebloom through postharvest. Apply the high rate and/or spray at shorter intervals when climatic conditions favor disease(s). Apply the low rate and/or spray at larger intervals when climatic conditions least favor disease(s). If you are unaware of the climatic conditions favorable for disease(s) claimed for the specific use sites, you must consult with your State Agricultural Extension Service to learn of these conditions. Mastercop is usually compatible with most fungicides, insecticides and foliar nutrients. To determine the physical compatibility with other products, use a jar test.

Mastercop may be reactive on metal surfaces such as galvanized roofing. Avoid contact with cars, houses or other metal surfaces susceptible to damage. Mastercop may discolor sprayed surfaces such as masonry or wood.

MIXING INSTRUCTIONS

Mastercop mixes easily with the water. Follow the instructions below:

1. Fill the mix tank with water to half volume.
2. Add the recommended quantity of Mastercop.
3. Fill the mix tank to full volume and mix well before application.
4. Maintain agitation during filling and spraying operations.
5. Spreaders, stickers, nutrients, etc. should be added last.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

TANK MIXING ORDER:

Add and thoroughly mix the pesticide products, one at a time, beginning with those hardest to mix (such as suspension-forming formulations). Wettable powder (WP) and dry flowable or water-dispersible granule (DF, WDG) products should be added initially followed by flowable (F, FL) and microencapsulated (ME) products. Add emulsifiable concentrates (EC) next, followed by any solutions (S) or soluble powder (SP) products. Any crop oils and/or surfactants should be added last. Preslurried (mixed with a little water) dry formulations before adding them to the spray tank.

APPLICATION AND HANDLING

DO NOT spray this product if rain is coming soon or if wind is high. **DO NOT** use carbon steel tanks for mixing; use plastic, bronze or stainless steel tanks. For aerial or concentrate spray applications, apply the same amount of Mastercop per acre as labeled for dilute spray applications. Apply aerial or concentrate sprays in sufficient water for coverage.

RESTRICTIONS

Pilots must use an enclosed cab that meets the definition listed in the WPS for agricultural pesticides [40 CFR 170.305].

USE INSTRUCTIONS

The following table shows suggested minimum spray volumes per acre; however, thorough coverage is essential for best results. The stage of growth and size are major factors in determining spray volume required to obtain thorough coverage. For question regarding spray volumes needed, consult the local cooperative extension service for spray volumes applicable to your particular crop.

Optimum Spray Volume (Gallons Per Acre) When Applying Mastercop			
	Aerial	Ground	
		Dilute	Concentrate
Citrus	10	800	100*
Field Crops	3	20	---
Small Fruits	5	150	50
Tree Crops	10	400	50
Vegetables	3	20	--
Vines	5	150	50
Miscellaneous	10	150	50
*Pesticide application equipment which are capable of obtaining thorough coverage at low volumes may be used at as low as 20 gallons per acre of spray volume.			

FROST INJURY PROTECTION

BACTERIAL ICE NUCLEATION INHIBITOR

Application of Mastercop made to all crops listed on this label at rates and stages of growth indicated on this label, at least 24 hours prior to anticipated frost conditions, will afford control of ice nucleating bacteria (*Pseudomonas syringae*, *Erwinia herbicola* and *Pseudomonas fluorescens*) and may therefore provide some protection against light frost. Not recommended for those geographical areas where weather conditions favor severe frost.

Mastercop is a formulated bactericide**/fungicide in aqueous solution, which dilutes in water to be applied by direct spray for controlling the following diseases:

Crop	Disease	Season	Use Rates in pints/acre (lbs metallic Cu/acre)	Maximum Annual Rate (pints/acre) (lbs metallic Cu/acre)	Minimum Retreatment Interval (days)	Use Instructions
*Alfalfa	Cercospora Leaf Spot, Leptosphaerulina Leaf Spot	Growing Season	0.5 -1.0 (0.03-0.07)	4.0 (0.27)	30	Apply 10 to 14 days before each harvest or earlier if disease threatens. PRECAUTION: Spray injury may occur with sensitive varieties such as Lahontan.
Almonds only	Bacterial Blast, *Bacterial Spot	Growing Season	0.5 (0.03)	1.5 (0.10)	14	Almond Only: For bacterial blast control in sprinkler irrigated orchards or where disease is severe, apply 0.5 pts per acre post-bloom at 2 week intervals or as needed or just before sprinkling. PRECAUTION: Foliar injury may occur from post-bloom sprays on almonds, especially on NePlus Varieties.
Almonds Apricots Cherry Plum Prune	Bacterial Blast (<i>Pseudomonas</i>), Bacterial Canker, Coryneum Blight (Shot Hole)	Fall, Late Dormant	3.0-6.0 (0.20-0.41)	12.0 (0.81)	7	Make first application before fall rains and a second at late dormant. Use the higher rates when conditions favor disease. If needed, agricultural-type spray oil may be added. For Cherries: Where disease is severe, an additional application shortly after harvest may be required.
	*Blossom Brown Rot, Coryneum Blight (Shot hole)	Bloom, Growing Season (Early Spring)	2.0-4.0 (0.14-0.27)		5	Apply during early bloom. PRECAUTION: DO NOT apply after full bloom or injury may occur. Use the higher rates when rainfall is heavy and disease pressure is high.
	*Black Knot (Plum)	Growing Season	1.5 -3.0 (0.10-0.20)		7	Make an application at bud swell up to early bloom for early season disease suppression. Apply before full bloom. Use the higher rates when rainfall is heavy and disease pressure is high. PRECAUTION: To avoid plant injury, DO NOT use after full bloom.
	*Cherry Leaf Spot	Growing Season	2.0-3.0 (0.14-0.20)		7	Apply at petal fall as well as 1 to 2 times after petal fall. Use the lower rates where disease infection is light and use the higher rates for a dormant application or where disease infection is moderate to heavy. As cherry varieties (such as sweet cherry and English Morello) differ in sensitivity to copper, always evaluate injury potential to Mastercop prior to treating orchards.

***Not for use in California.**

Crop	Disease	Season	Use Rates in pints/acre (lbs metallic Cu/acre)	Maximum Annual Rate (pints/acre) (lbs metallic Cu/acre)	Minimum Retreatment Interval (days)	Use Instructions
Apple	Anthracnose, Blossom Blast, European Canker (<i>Nectria</i>), Shoot Blast (<i>Pseudomonas</i>)	Fall	4.0-6.0 (0.27-0.41)	237 (16)	7	Apply before fall rains. Use the higher rates when conditions favor disease. RESTRICTION: DO NOT exceed a single application rate of 6 lbs metallic Cu/A. PRECAUTION: Use on yellow varieties may cause discoloration. To avoid discoloration pick before spraying.
	Apple Scab, Fire Blight	Fall, Late Dormant	3.0-6.0 (0.20-0.41)		Only 1 application per season permitted	Make application between silver-tip and green tip. Apply as a full cover spray for early season disease suppression. RESTRICTION: DO NOT exceed a single application rate of 6 lbs metallic Cu/A. PRECAUTION: Moderate to severe crop injury may occur from late application. After green tip reaches 1/2 inch, use only on varieties not prone to fruit russetting. DO NOT tank mix with acidifying surfactants or non-buffered phosphite fungicides. DO NOT apply Mastercop just prior to predicted frosts.
	*Collar Rot, *Crown Rot	Dormant Spring /Fall	1.5 (0.10)		30	Mix in 100 gallons of water. Apply 4 gallons of suspension as a drench on the lower trunk area of each tree. Apply in early spring or in fall after harvest for best results. DO NOT apply to foliage or fruit. RESTRICTION: DO NOT exceed a single application rate of 6 lbs metallic Cu/A. PRECAUTION: DO NOT use if soil pH is below 5.5 since copper toxicity may result.
	Apple Scab	Growing Season	0.5 -1.5 (0.03-0.10)		5	Extended spray schedule where fruit finish is not a concern: Continued applications may be made at 5 to 7 day intervals or as needed between 1/2 inch green-tip through cover season, as needed. Use a reliable fire blight disease model. RESTRICTION: DO NOT exceed a single application rate of 6 lbs metallic Cu/A.
Apple (all areas except WA, OR, and ID)	Fire Blight	Growing Season	0.5 -1.5 (0.03-0.10)		5	PRECAUTION: Moderate to severe crop injury may result from this extended spray schedule depending on variety. Caution should be taken on varieties prone to fruit russetting.
Apple (WA, OR, and ID)	Fire Blight	Growing Season	0.5 - 2.5 (0.03-0.17)		5	Extended spray schedule where fruit finish is not a concern: Continued applications may be made at 5 to 7 day intervals or as needed between 1/2 inch green-tip through cover season, as needed. Use a reliable fire blight disease model. RESTRICTION: DO NOT exceed a single application rate of 6 lbs metallic Cu/A. PRECAUTION: Moderate to severe crop injury may result from this extended spray schedule depending on variety. Caution should be taken on varieties prone to fruit russetting.

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Crop	Disease	Season	Use Rates in pints/acre (lbs metallic Cu/acre)	Maximum Annual Rate (pints/acre) (lbs metallic Cu/acre)	Minimum Retreatment Interval (days)	Use Instructions
*Atemoya	Anthrachnose	Growing season	0.5 -1.0 (0.03-0.07)	7.0 (0.47)	7	Make initial application just before flowering and repeat on a weekly schedule until just before harvest. Apply in sufficient water for thorough coverage. Use the higher rates for severe disease.
Avocado	Algal leaf spot, Anthrachnose, *Blotch, Scab	Growing Season	2.0-4.0 (0.14-0.27)	24.0 (1.62)	14	Apply when bloom buds begin to swell and continue application at monthly intervals for five to six applications. Use the higher rates when conditions favor disease.
*Banana	Sigatoka (Black and Yellow)	Growing Season	1.5 (0.10)	15.0 (1.01)	7	Apply by air in 3 gallons of water. If needed, an agricultural-type spray oil may be added. Apply on a 14 day schedule or as needed throughout the wet season. Apply at 21 day intervals or as needed during dry periods.
	Black Pitting					Mix in 100 gallons of water. Apply to the fruit stem and the basal portion of the leaf crown. Apply during the first and second weeks after fruit emergence.
*Bean: Dry Green	Brown Spot, Common Blight, Halo Blight	Growing season	0.5-1.0 (0.03-0.07)	15.0 (1.01)	7	For protective sprays, make first application when plants are 6 inches high; repeat on a 7 to 14 day schedule or as needed depending on environmental conditions. Use the higher rates for more severe disease.
*Beet: Table Beet Beet Greens	Cercospora Leaf Spot	Growing season	0.5 -1.5 (0.03-0.10)	6.0 (0.41)	10	Begin applications when conditions first favor disease development and repeat at 10 to 14 day intervals or as needed. Use the higher rates when conditions favor disease.
Blackberry: Aurora Boysen Cascade Chehalem Logan Marion Santiam Thornless Evergreen	*Anthrachnose, *Cane Spot, Leaf Spot, Pseudomonas Blight, *Purple Blotch, *Yellow Rust	Fall, Late Dormant	1.0-2.0 (0.07-0.14)	4.0 (0.27)	7	Make fall applications after harvest. Apply delayed dormant spray after pruning/training in the spring. If needed, agricultural-type spray oil may be added.
	Anthrachnose, *Cane Spot, Leaf Spot, *Purple Blotch, *Yellow Rust	Growing Season	0.5 - 1.0 (0.03-0.07)			Apply when leaf buds begin to open and repeat when flower buds show white. If needed, agricultural-type spray oil may be added. PRECAUTION: Crop injury may occur if applied to foliage under certain environmental conditions such as hot or prolonged moist periods. Discontinue applications if signs of crop injury appear.

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Crop	Disease	Season	Use Rates in pints/acre (lbs metallic Cu/acre)	Maximum Annual Rate (pints/acre) (lbs metallic Cu/acre)	Minimum Retreatment Interval (days)	Use Instructions
Blueberry	Bacterial Canker	Fall, Late Dormant	1.5-3.0 (0.10-0.20)	6.0 (0.41)	30	Make first application before fall rains and a second application 4 weeks later. Use the higher rates when conditions favor disease.
	*Fruit Rot, *Phomopsis Twig Blight	Late Dormant	1.0 -2.0 (0.07-0.14)		10	Dormant Application: Begin applications when bloom buds begin to swell. Make additional applications at 10 to 14 day intervals or as needed before blooms open.
*Cacao	Black Pod	Growing Season	0.5 -3.0 (0.03-0.20)	15.0 (1.01)	14	Begin applications at the start of the rainy season and continue while infections conditions persist. Apply 0.5 to 3.0 pts. at 14 to 21 day intervals or as needed depending on disease severity. For drier areas, make two to four applications using 2.5 to 3.75 pts. per acre according to disease incidence and planting density.
*Carambola	Anthrachnose	Growing season	2.0 -3.0 (0.14-0.20)	9.0 (0.61)	7	Make initial application just before flowering and repeat on a weekly schedule until just before harvest. Apply in sufficient water for thorough coverage. Use the higher rates for severe disease.
Carrot	Alternaria Leaf Spot, Cercospora Leaf Spot	Growing season	0.5-1.5 (0.03-0.10)	15.0 (1.01)	7	Begin applications when disease first threatens and repeat at 7 to 14 day intervals or as needed depending on disease severity. Same rates apply to crops grown for seed.
Celery, Celeriac	*Bacterial Blight, *Bacterial Leaf Spot, Cercospora Early Blight, Septoria Late Blight	Growing season	0.5 -1.0 (0.03-0.07)	6.0 (0.41)	5	Begin applications as soon as plants are first established in the field, repeating at 5 to 7 day intervals or as needed depending on disease severity and environmental conditions. Same rates apply to crops grown for seed.
Chives	*Bacterial Soft Rot, Downy Mildew, *Gray Mold (Botrytis)	Growing season	0.5 -1.0 (0.03-0.07)	5.0 (0.34)	7	Begin applications when plants are established in the field. Repeat applications every 7 to 10 days or as needed depending on disease conditions.

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Crop	Disease	Season	Use Rates in pints/acre (lbs metallic Cu/acre)	Maximum Annual Rate (pints/acre) (lbs metallic Cu/acre)	Minimum Retreatment Interval (days)	Use Instructions
Citrus: Grapefruit Kumquat Lemon Lime Oranges Pummelo Tangelo Tangerine	Citrus Canker (Suppression)	Growing Season	1.0 -3.0 (0.07-0.20)	51.0 (3.44)	7	Spray flushes 7 to 14 days after shoots begin to grow. Young fruit may require an additional application. Number and timing of applications will be dependent upon disease pressure. Under heavy pressure, each flush of new growth should be sprayed.
	Algal Spot, Melanose, Scab	Early Season	1.5 -5.0 (0.10-0.34)		14	Apply as pre-bloom and post bloom sprays Use the higher rates when conditions favor disease.
	Alternaria Brown Spot	Early Season	1.5 - 3.5 (0.10-0.24)		14	On susceptible varieties apply when the first spring flush appears and each following flush. Application to fruit should start after 2/3 of the petals have fallen and be repeated on a 21 day schedule or as needed. Use the higher rates when conditions favor disease.
	Greasy Spot, *Pink Pitting	Growing Season	0.5 -2.5 (0.03-0.17)		14	Apply in summer on expanded new flush. Repeat on subsequent flushes where disease pressure is severe. Use the higher rates when conditions favor disease.
	*Phytophthora Brown Rot, *Septoria Spot	Fall and Winter	1.5 -3.5 (0.10-0.24)		7	Begin application in fall before or just after the first rain and continue as needed. For Brown Rot only apply to skirts of trees to a height of at least 4 feet. For control of Septoria Sport or where fruit have already been infected with Brown Rot, apply to entire tree. Apply to bare ground one foot beyond skirt. Use the higher rates when conditions favor disease. PRECAUTION: DO NOT use in areas subject to copper injury.

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Crop	Disease	Season	Use Rates in pints/acre (lbs metallic Cu/acre)	Maximum Annual Rate (pints/acre) (lbs metallic Cu/acre)	Minimum Retreatment Interval (days)	Use Instructions
*Coffee	Coffee Berry Disease (<i>Colletotrichum coffeanum</i>)	Growing Season	2.0 - 3.0 (0.14-0.20)	15.0 (1.01)	21	Apply first spray after flowering and before onset of long rains and then at 21 to 28 day intervals or as needed until picking. Use the higher rates when conditions favor disease.
	Bacterial Blight (<i>Pseudomonas syringae</i>)	Growing Season	2.0 - 3.0 (0.14-0.20)		14	Begin spray program before the onset of long rainy periods and continue through the rainy season at 14 to 21 day intervals or as needed. The critical time for spraying to control this disease is just before, during and after flowering(s), especially when coinciding with wet weather. Use the higher rates when rainfall is heavy and disease pressure is high.
	Leaf Rust (<i>Hemileia vastatrix</i>)	Growing Season	0.5 -1.5 (0.03-0.10)		21	Apply before the onset of rain and then at 21 day intervals or as needed while the rains continue. Use the higher rates when rainfall is heavy and disease pressure is high.
	Iron Spot (<i>Cercospora coffeicola</i>), Pink Disease (<i>Corticium salmonicolor</i>)	Growing Season	0.5-1.0 (0.03-0.07)		30	Use concentrate or dilute spray. Begin treatment at the start of wet season and continue at monthly intervals for three applications.
*Corn: *Field Corn *Popcorn *Sweet Corn	Bacterial Stalk Rot	Growing Season	0.5 -1.5 (0.03-0.10)	6.0 (0.41)	7	Begin treatment when disease first appears and every 7 to 10 days or as needed. Use the higher rates and shorter spray intervals when conditions favor disease.
*Cranberry	Fruit Rot	Growing Season	3.0 (0.20)	9.0 (0.61)	10	Make first application in late bloom. Apply one or two additional applications at 10 to 14 day intervals or as needed depending on disease severity.
	Rose Bloom	Growing Season				Apply three sprays on 10 to 14 day schedule or as needed as soon as symptoms are observed.
	Bacterial Stem Canker	Post Harvest / Dormant				Apply post harvest and again in spring at bud swell. Apply one or two additional applications at 10 to 14 day intervals or as needed depending on disease severity.
	Leaf Blight, Red Leaf Spot Stem Blight, Tip Blight	Late Dormant				Apply delayed dormant spray in the spring. Repeat at 10 to 14 day intervals or as needed through pre-bloom.

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Crop	Disease	Season	Use Rates in pints/acre (lbs metallic Cu/acre)	Maximum Annual Rate (pints/acre) (lbs metallic Cu/acre)	Minimum Retreatment Interval (days)	Use Instructions
Crucifers: Broccoli Brussels Sprouts Cabbage Cauliflower Collard Greens *Kale Mustard Greens Turnip Greens	Black Leaf Spot (<i>Alternaria</i>), Black Rot (<i>Xanthomonas</i>), Downy Mildew	Growing season	0.5-1.0 (0.03-0.07)	6.0 (0.41)	7	Begin application after transplants are set in the field, or shortly after emergence of field seeded crops or when conditions favor disease development. Apply at 7 to 10 day intervals or as needed. Use the higher rates when conditions favor disease. PRECAUTION: Reddening of older leaves may occur on broccoli and a flecking of wrapper leaves may occur on cabbage.
Cucurbits: Cantaloupe, Cucumber Honeydew Muskmelon Pumpkin Squash Watermelon *Zucchini	Alternaria Leaf Spot, Angular Leaf Spot, Anthracnose, Downy Mildew, *Gray Mold (<i>Botrytis</i>), *Gummy Stem Blight, Powdery Mildew, *Watermelon Bacterial Fruit Blotch (suppression)	Growing season	0.5-1.0 (0.03-0.07)	15.0 (1.01)	5	Begin applications prior to disease development and continue while conditions are favorable for disease development. Repeat at 5 to 7 day intervals or as needed. Use the higher rates when conditions favor disease. Same rates apply to crops grown for seed. PRECAUTION: Crop injury may occur from application at higher rates and shorter intervals. Discontinue use if injury occurs.
*Currant, *Gooseberry	Anthracnose, Leaf Spot	Growing Season	3.0 (0.20)	9.0 (0.61)	10	Make initial application after first leaves have expanded. Continue on a 10 to 14 day schedule or as needed during wet conditions in the spring. Make an additional application after harvest.
Dill	Phoma Leaf Spot, *Rhizoctonia, *Foliage Blight	Growing season	0.5 - 1.0 (0.03-0.07)	5.0 (0.34)	7	Begin applications when plants are first established in the field and repeat at 7 to 10 day intervals or as needed depending upon disease severity and environmental conditions. Use the higher rates when conditions favor disease.
Eggplant	Alternaria Blight, *Anthracnose, *Phomopsis, *Gray Mold (<i>Botrytis</i>)	Growing season	0.5 -1.5 (0.03-0.10)	9.0 (0.61)	7	Begin applications prior to development of disease symptoms. Repeat spray at 7 to 10 day intervals or as needed depending on disease severity.

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Crop	Disease	Season	Use Rates in pints/acre (lbs metallic Cu/acre)	Maximum Annual Rate (pints/acre) (lbs metallic Cu/acre)	Minimum Retreatment Interval (days)	Use Instructions
*Filbert	Bacterial Blight	Post Harvest	6.0 -9.0 (0.41-0.61)	36.0 (2.43)	14	Apply as a post harvest spray. In seasons of heavy rainfall, apply a second spray when three-fourths of the leaves have dropped. Use the higher rates when rainfall is heavy and disease pressure is high. If needed, agricultural-type spray oil may be added. RESTRICTION: DO NOT exceed a maximum annual application rate of 18 lbs metallic Cu/A/yr.
	Eastern Filbert Blight	Growing Season				Apply as a dilute spray in adequate water for thorough coverage. Make applications starting at bud swell to bud break and continue at 2-week intervals or as needed until early May. Thorough coverage is essential. Use the higher rates when rainfall is heavy and disease pressure is high. If needed, agricultural-type spray oil may be added. RESTRICTION: DO NOT exceed a maximum annual application rate of 18 lbs metallic Cu/A/yr.
Ginseng	Alternaria Leaf Blight, Stem Blight	Growing season	0.5 -1.5 (0.03-0.10)	6.0 (0.41)	7	PRECAUTION: Alternaria Leaf and Stem Blight is most severe in humid conditions such as those found in the dense canopies of 2 to 4 year old Ginseng. It is very important that the stems be thoroughly covered with fungicide; therefore, use a spray apparatus which distributes the fungicide throughout the canopy.
Grapes	*Brown Rot, Downy Mildew, Gray Mold (<i>Botrytis</i>), *Phomopsis	Bloom, Growing Season,	1.0-3.0 (0.07-0.20)	30.0 (2.03)	3	Begin applications at bud break with subsequent applications throughout the season depending on disease severity. Use the higher rates when conditions favor disease. PRECAUTION: Foliage injury may occur on copper sensitive varieties such as Concord, Delaware, Niagara and Rosette.
	Powdery Mildew	Fall, Late Dormant	2.0-3.0 (0.14-0.20)			
*Guava	Anthraxnose, Red Algae	Growing season	0.5 – 1.5 (0.03-0.10)	6.0 (0.41)	7	Make initial application just before flowering and repeat on a weekly schedule until just before harvest. Apply in sufficient water for thorough coverage. Use the higher rates for severe disease.
*Hops	Downy Mildew	Late dormant	0.5 -1.0 (0.03-0.07)	6.0 (0.41)	10	Make crown treatment after pruning, but before training. After training, additional treatments are needed at about 10 day intervals. PRECAUTION: Discontinue use 2 weeks before harvest.

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Crop	Disease	Season	Use Rates in pints/acre (lbs metallic Cu/acre)	Maximum Annual Rate (pints/acre) (lbs metallic Cu/acre)	Minimum Retreatment Interval (days)	Use Instructions
*Kiwi	<i>Erwinia herbicola</i> , <i>Pseudomonas fluorescens</i> , <i>Pseudomonas syringae</i>	Growing season	1.5 -3.0 (0.10-0.20)	9.0 (0.61)	30	Apply in 200 gallons of water per acre. Make applications on a monthly basis. A maximum of three applications may be made.
*Leek, *Shallot	Downy Mildew, Gray Mold (<i>Botrytis</i>), Bacterial Soft Rot	Growing season	0.5 -1.5 (0.03-0.10)	15.0 (1.01)	7	Begin when plants are 4 to 6 inches high and repeat at 7 to 10 day intervals or as needed depending on disease severity. Can cause phytotoxicity to leaves.
Lettuce	Gray Mold (<i>Botrytis</i>), Bacterial soft rot	Growing Season	1.0-2.0 (0.07-0.14)	8.0 (0.54)	5	Apply at first sign of disease or when conditions favor disease development. Repeat every 5 to 10 days. Lower rates are advised for copper sensitive varieties. Same rates apply to crops grown for seed. RESTRICTION: For single applications DO NOT exceed 1.0 lbs metallic copper/A.
*Litchi	Anthraxnose	Growing season	0.5 -1.5 (0.03-0.10)	6.0 (0.41)	7	Make initial application just before flowering and repeat on a weekly schedule until just before harvest. Apply in sufficient water for thorough coverage. Use the higher rates for severe disease.
*Macadamia	Anthraxnose	Growing season	1.5 - 3.0 (0.10-0.20)	12.0 (0.81)	7	Initiate sprays at first sign of flowering and repeat on a weekly schedule until just before harvest. Apply in sufficient water for thorough coverage. Use the higher rates when conditions favor disease.
	Phytophthora Blight (<i>P. capsici</i>), Raceme Blight (<i>Botrytis cinerea</i>)	Growing season	1.0- 2.0 (0.07-0.14)	10.0 (0.68)	7	Apply during aceme development and bloom periods. Apply in sufficient water for thorough coverage. Use the higher rates when conditions favor disease.
*Mamey Sapote	Algal Leaf Spot, Anthraxnose	Growing season	2.0 - 3.0 (0.14-0.20)	9.0 (0.61)	14	Apply when conditions favor disease development. Repeat on 14 to 30 day schedule or as needed as disease severity and environmental conditions dictate. Use the higher rates when conditions favor disease.
*Mango	Anthraxnose	Growing Season	1.5 - 3.0 (0.10-0.20)	9.0 (0.61)	30	Apply monthly after fruit set until harvest. Use the higher rates when rainfall is heavy and disease pressure is high.

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Crop	Disease	Season	Use Rates in pints/acre (lbs metallic Cu/acre)	Maximum Annual Rate (pints/acre) (lbs metallic Cu/acre)	Minimum Retreatment Interval (days)	Use Instructions
Nectarine	Bacterial Blast (Pseudomonas) Bacterial Canker, Bacterial Spot (Xanthomonas) Coryneum Blight (Shot Hole), *Leaf Curl	Fall Dormant	3.0 - 6.0 (0.20-0.41)	20.0 (1.35)	21	Make first application before fall rains and a second at late dormant. For peach leaf curl, late dormant application must be made before leaf buds swell. Use the higher rates when rainfall is heavy and disease pressure is high. If needed, agricultural-type spray oil may be added.
	*Blossom Brown Rot, Coryneum Blight (Shot Hole), *Leaf Curl	Growing Season (Pink Bud)	2.0-4.0 (0.14-0.27)		5	Full cover spray at pink bud. Use the higher rates when conditions favor disease. Evaluate fruit finish impact on susceptible varieties prior to use.
	Bacterial Spot	Growing season (Post Bloom)	0.25 -0.5 (0.02-0.03)		7	Apply as a post bloom cover spray. Repeat at 7 day intervals if needed. PRECAUTION: Spotting of leaves and defoliation may occur from use in cover sprays - varietal differences occur.
*Okra	Anthrachnose, Bacterial Leaf Spot, Leaf Spots, Pod Spot, Powdery Mildew	Growing season	0.5 -1.5 (0.03-0.10)	9.0 (0.61)	5	Begin treatment when disease first threatens and repeat every 5 to 10 days or as needed depending on disease severity. Use the higher rates and shorter spray intervals when conditions favor disease.
Olives	Peacock Spot, Olive Knot	Fall, Late Dormant	3.0 - 5.0 (0.20-0.34)	10.0 (0.68)	30	Make first application before winter rains begin. A second application in early spring should be made if disease is severe. Apply the higher rates for heavy disease pressure or when conditions favor disease development.
Onion, *Garlic	Downey Mildew, *Bacterial Blight, *Purple Blotch, *Gray Mold (Botrytis) *Bacterial Soft Rot	Growing season	0.5 -1.5 (0.03-0.10)	15.0 (1.01)	7	Begin when plants are 4 to 6 inches high and repeat at 7 to 10 day intervals or as needed depending on disease severity. Can cause phytotoxicity to leaves.
*Papaya	Anthrachnose	Growing season	1.5 -3.0 (0.10-0.20)	12.0 (0.81)	5	Apply before disease appears. Apply at 10 to 14 day intervals under light disease pressure and 5 to 7 day intervals or as needed under heavy disease pressure. The addition of an approved spreader is desirable. Use the higher rates when conditions favor disease.
Parsley	*Bacterial Blight (Pseudomonas sp.), *Leaf Scorch, *Leaf Spot	Growing season	0.5 -1.5 (0.03-0.10)	6.0 (0.41)	10	Begin applications when plants are first established in the field and repeat at 10 day intervals or as needed depending on disease severity and environmental conditions.

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Crop	Disease	Season	Use Rates in pints/acre (lbs metallic Cu/acre)	Maximum Annual Rate (pints/acre) (lbs metallic Cu/acre)	Minimum Retreatment Interval (days)	Use Instructions
*Passion Fruit	Anthraxnose	Growing season	2.0 -3.0 (0.14-0.20)	12.0 (0.81)	7	Make initial application just before flowering and repeat on a weekly schedule until just before harvest. Apply in sufficient water for thorough coverage. Use the higher rates for severe disease.
Pea	Powdery Mildew	Growing season	0.5-1.0 (0.03-0.07)	7.0 (0.47)	7	Begin applications when disease symptoms first appear and repeat at weekly intervals or as needed. Use the higher rates when conditions favor disease.
Peach	Bacterial Blast (Pseudomonas), Bacterial Canker, Bacterial Spot (Xanthomonas), Coryneum Blight (Shot Hole), *Leaf Curl	Fall Dormant	3.0 - 6.0 (0.20-0.41)	20.0 (1.35)	21	Make first application before fall rains and a second at late dormant. For peach leaf curl, late dormant application must be made before leaf buds swell. Use the higher rates when rainfall is heavy and disease pressure is high. If needed, agricultural-type spray oil may be added.
	*Blossom Brown Rot, Coryneum Blight (Shot Hole), *Leaf Curl	Growing Season (Pink Bud)	2.0 - 4.0 (0.14-0.27)		5	Full cover spray at pink bud. Use the higher rates when conditions favor disease. Evaluate fruit finish impact on susceptible varieties prior to use.
	Bacterial Spot	Growing season (Post Bloom)	0.25 - 0.5 (0.02-0.03)		7	Apply as a post bloom cover spray. Repeat at 7 day intervals if needed. PRECAUTION: Spotting of leaves and defoliation may occur from use in cover sprays - varietal differences occur.
*Peanut	Cercospora Leaf Spot	Growing Season	0.75 - 1.25 (0.05-0.08)	8.75 (0.59)	7	Begin spraying at 35 to 40 days after planting or when disease symptoms first appear and repeat at 10 to 14 day intervals or as needed. Reduce sprays to 7 day intervals during humid weather. Use the higher rates when conditions favor disease. Flowable sulfur may be added.
Pear	Fire Blight	Growing season	0.5 (0.03)	12.0 (0.81)	5	Apply at 5 day intervals or as needed throughout the bloom period. RESTRICTION: DO NOT exceed a single application rate of 6 lbs metallic Cu/A. PRECAUTION: Russetting may occur in copper sensitive varieties. Excessive dosages may cause fruit russet on any variety.
	Blossom Blast (Pseudomonas)	Fall, Late Dormant	4.0 - 6.0 (0.27-0.41)		only one application	Apply before fall rains and again during dormancy before spring growth starts. Use the higher rates when disease pressure is high or when conditions favor disease development. RESTRICTION: DO NOT exceed a single application rate of 6 lbs metallic Cu/A.

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Crop	Disease	Season	Use Rates in pints/acre (lbs metallic Cu/acre)	Maximum Annual Rate (pints/acre) (lbs metallic Cu/acre)	Minimum Retreatment Interval (days)	Use Instructions
*Pecan	Kernel Rot, Shuck Rot, (<i>Phytophthora cactorum</i>) Zonate Leaf Spot (<i>Cristulariella pyramidalis</i>)	Growing season	0.5 - 1.5 (0.03-0.10)	6.0 (0.41)	14	For suppression, apply in sufficient water to ensure complete spray coverage at 2 to 4 week intervals or as needed, starting at kernel growth and continue until shucks open. Use the higher rates and shorter spray intervals if frequent rainfall occurs. RESTRICTION: DO NOT exceed a maximum annual application rate of 6.3 lbs metallic Cu/A/yr.
	Ball Moss, Spanish Moss	Late dormant	2.0 – 3.0 (0.14-0.20)			Apply in 100 gallons of water in the spring when ball moss is actively growing, using 1½ gallons of spray per foot of tree height. Make sure to wet ball moss tufts thoroughly. A second application may be required after 12 months. RESTRICTION: DO NOT exceed a maximum annual application rate of 6.3 lbs metallic Cu/A/yr.
Pepper	*Anthracnose, Bacterial Spot, <i>Cercospora</i> Leaf Spot, *Gray Mold (<i>Botrytis</i>)	Growing season	0.5 -3.0 (0.03-0.20)	30.0 (2.03)	3	Begin applications when condition first favor disease development and repeat at 3 to 10 day intervals or as needed depending on disease severity. Use the higher rates when conditions favor disease.
Pistachio	*Botryosphaeria Panicle and *Shoot Blight, *Botrytis Blight, Late Blight (<i>Alternaria alternata</i>), Septoria Leaf Blight	Growing season	1.5 - 3.0 (0.10-0.20)	9.0 (0.61)	14	Make initial application at bud swell and repeat on a 14 to 28 day schedule or as needed. If disease conditions are severe, use the higher rates and shorter spray intervals.
*Potato	Early Blight, Late Blight	Growing Season	0.5 - 1.5 (0.03-0.10)	22.0 (1.49)	5	Apply 0.5 to 1.5 pints at 5 to 10 day intervals or as needed starting when plants are 2 to 6 inches high in locations where disease is light. Apply up to 1.5 pints per acre when disease is more severe. Under conditions of severe disease, control with Mastercop will be improved by tank mixing with other compatible fungicides registered for use on potatoes. Read and follow all label instructions of tank mix partners.
*Quince	Fire Blight	Growing season	0.5 (0.03)	4.0 (0.27)	5	Apply at 5 day intervals or as needed throughout the bloom period. Apply in adequate water for thorough coverage.

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Crop	Disease	Season	Use Rates in pints/acre (lbs metallic Cu/acre)	Maximum Annual Rate (pints/acre) (lbs metallic Cu/acre)	Minimum Retreatment Interval (days)	Use Instructions
Raspberry	Anthrachnose, *Cane Spot, Leaf Spot, Pseudomonas Blight, *Purple Blotch, *Yellow Rust	Fall, Late Dormant	1.0 - 2.0 (0.07-0.14)	4.0 (0.27)	7	Make fall application after harvest. Apply delayed dormant spray after training in the spring. If needed, agricultural-type spray oil may be added.
	Anthrachnose, *Cane Spot, Leaf Spot, *Purple Blotch, *Yellow Rust	Growing Season	0.5 - 1.0 (0.03-0.07)			Apply when leaf buds begin to open and repeat when flower buds show white. If needed, agricultural-type spray oil may be added. PRECAUTION: Crop injury may occur if applied to foliage under certain environmental conditions such as hot or prolonged moist periods. Discontinue applications if sign of crop injury appear.
Spinach	Anthrachnose, *Blue Mold, Cercospora Leaf Spot, *Downey Mildew, White Rust	Growing season	0.5 - 1.0 (0.03-0.07)	5.0 (0.34)	7	Begin application when disease first appears or when conditions favor disease development. Repeat at 7 to 10 day intervals or as needed. Use the higher rates when conditions favor disease. PRECAUTION: Flecking may occur in spinach leaves.
Strawberry	Angular Leaf Spot (<i>Xanthomonas</i>) *Leaf Blight, *Leaf Scorch, Leaf Spot	Growing Season	0.5 - 1.0 (0.03-0.07)	22.0 (1.49)	7	Begin application when plants are established and continue on a weekly schedule throughout the season. Apply in at least 20 gallons of water. Use the higher rates when conditions favor disease. RESTRICTON: DO NOT exceed a maximum annual application rate of 6 lbs metallic Cu/A/yr. PRECAUTION: Discontinue applications if signs of crop injury appear.
*Sugar Apple (<i>Annona</i>)	Anthrachnose	Growing season	3.0 - 6.0 (0.20-0.41)	24.0 (1.62)	7	Make initial application just before flowering and repeat on a weekly schedule until just before harvest. Apply in sufficient water for thorough coverage. Use the higher rates for severe disease.
*Sugar Beet	Cercospora Leaf Spot	Growing Season	0.5 - 1.5 (0.03-0.10)	7.5 (0.51)	10	Begin application when conditions favor disease development and repeat at 10 to 14 day intervals or as needed. Use the higher rates when conditions favor disease. Addition of a spreader/sticker is recommended.
*Sycamore	Anthrachnose	Growing season	0.5 - 1.0 (0.03-0.07)	6.0 (0.41)	7	Apply as a full cover spray in 100 gallons of water or sufficient volume for thorough coverage. Make first application at bud crack and second application 7 to 10 days later at 10% leaf expansion. Use the higher rates when conditions favor disease.

*Not for use in California.

Crop	Disease	Season	Use Rates in pints/ acre (lbs metallic Cu/acre)	Maximum Annual Rate (pints/acre) (lbs metallic Cu/acre)	Minimum Retreatment Interval (days)	Use Instructions
Tobacco	Angular Leaf Spot, Downy Mildew	Growing Season	1.0 - 1.3 (0.07-0.09)	19 (1.28)	10	Apply at first sign of disease or when conditions favor disease development. RESTRICTION: DO NOT exceed a maximum annual application rate of 4 lbs metallic Cu/A/yr.
Tomato (Fresh market & Processing)	Anthraxnose, Bacterial Speck, Bacterial Spot, *Bacterial Wilt Early Blight, *Gray Mold, Gray Leaf Mold, Late Blight, *Powdery Mildew, Septoria Leaf Spot	Growing season	0.5 - 3.0 (0.03-0.20)	40.0 (2.70)	3	Begin applications when disease first threatens and repeat at 5 to 10 day intervals or as needed depending on disease severity. Use the higher rates when conditions favor disease. Same rates apply to crops grown for seed.
Walnuts	Walnut Blight	Early Season	3.0 - 6.0 (0.20-0.41)	30.0 (2.03)	7	Apply first spray at early pre-bloom prior to or when catkins are partially expanded. Make additional applications during bloom and early nutlet stage or as needed when frequent rainfall or extended periods of moisture occur. Thorough coverage of catkins, leaves, and nutlets is essential for effective control. PRECAUTION: Adequate control may not be obtained when copper tolerant species of <i>Xanthomonas</i> bacteria are present.
*Watercress	Cercospora Leaf Spot	Growing season	0.5 - 1.0 (0.03-0.07)	4.0 (0.27)	7	For applications made to watercress, production fields must be drained of water at least 24 hours prior to each application and water must not be reapplied to the field for a minimum of 24 hours following each application. Copper must not be applied to watercress during the aquatic production phase. Begin applications when plants are first established in the field, repeating at 7 to 14 day intervals or as needed depending on disease severity. RESTRICTON: DO NOT exceed 4 applications per crop. Apply using ground spray equipment at no less than 50 gallons of spray solution per acre.
*Wheat, *Barley, *Oats	Helminthosporium Spot, Blotch, Septoria Leaf Blotch	Growing Season	0.5 - 1.5 (0.03-0.10)	1.5 (0.10)	10	Make first application at early heading and follow with second spray 10 days later. Use the higher rates when conditions favor disease. For wheat, Mastercop can be applied as a foliar application for early season disease control and again at early heading and followed with another application 10 days later.

***Not for use in California.**

PHYTOTOXICITY: As plant varieties of stone fruit, pome fruits, grapes, and cucurbits differ in sensitivity to copper, always evaluate injury potential to Mastercop prior to treating orchards or fields.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE:

Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food and feed. Store in original container and out of reach of children, preferably in a locked storage area.

DO NOT store above 100°F for extended periods of time. Storage below 20°F can result in formation of crystals. If product crystallizes, store at 50°F to 70°F and agitate to redissolve crystals. If container is damaged or spill occurs, use product immediately or dispose of product and damaged container as indicated below.

PESTICIDE DISPOSAL:

Open dumping is prohibited. Pesticide wastes are toxic. 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, 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 HANDLING:

NONREFILLABLE CONTAINERS:

Rigid, Nonrefillable containers small enough to shake (i.e. with capacities equal to less than five 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 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 if available, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

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 a mix tank or collect rinsate at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Once container is rinsed, offer for recycling if available, or puncture and dispose of in a sanitary landfill.

Rigid, Nonrefillable containers that are too large to shake (i.e. with capacities greater than 5 gallons or 50 lbs).

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. Offer for recycling or reconditioning if available, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

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 a mix tank or collect rinsate at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Once container is rinsed, offer for recycling if available, or puncture and dispose of in a sanitary landfill.

LIMITATION OF WARRANTY AND LIABILITY

Read the entire directions for use, conditions of warranties and limitations of liability before using this product. If terms are not acceptable, return the unopened product container at once.

By using this product, user or buyer accepts the following **CONDITIONS, DISCLAIMER OF WARRANTIES, and LIMITATIONS OF LIABILITY.**

CONDITIONS: The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of ADAMA. To the extent consistent with applicable law, all such risks shall be assumed by the user or buyer.

DISCLAIMER OF WARRANTIES: To the extent consistent with applicable law, ADAMA makes no other warranties, express or implied, of merchantability or of fitness for a particular purpose or otherwise, that extend beyond the statements made on this label. No agent of ADAMA is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. To the extent consistent with applicable law, ADAMA disclaims any liability whatsoever for special, incidental or consequential damages resulting from the use or handling of this product.

LIMITATIONS OF LIABILITY: To the extent consistent with applicable law, the exclusive remedy of the user or buyer for any and all losses, injuries or damages resulting from the use or handling of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid or at ADAMA's election, the replacement of product.

Mastercop is a registered trademark of an ADAMA Group Company.

Manufactured for:

Makhteshim Agan of North America, Inc. (d/b/a ADAMA)
8601 Six Forks Road, Suite 300
Raleigh, NC 27615

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Mastercop®

COPPER SULFATE
PENTAHYDRATE

GROUP

M1

FUNGICIDE

PEEL BACK BOOK HERE

BACTERICIDE**/FUNGICIDE

FOR USE IN LISTED CITRUS, VEGETABLES, TREE CROPS,
TOBACCO, SMALL FRUITS, VINES AND FIELD CROPS.

Active Ingredient: % BY WT
Copper sulfate pentahydrate*† 21.46%
Other Ingredients: 78.54%
Total: 100.00%

*CAS No. 7758-99-8

Contains 2.15 lbs. copper sulfate pentahydrate per gallon

Contains 0.54 lbs. metallic copper per gallon

†Metallic copper content 5.4%

**For Non-Public Health Bacteria

EPA Reg. No. 55272-18-66222

EPA Est. No. 55272-MEX-2; 55272-MEX-1

KEEP OUT OF REACH OF CHILDREN DANGER/PELIGRO

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

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS DANGER/PELIGRO

Corrosive. Causes irreversible eye damage. **DO NOT** get in eyes or on clothing. Wear protective eyewear such as goggles, face shield, or safety glasses. Harmful if swallowed, absorbed through skin, or inhaled. Avoid contact with skin, eyes or clothing. Avoid breathing vapor or spray mist. Remove and wash contaminated clothing before reuse.

How can we help?
1-866-406-6262

Manufactured for:
Mokhteshim Agan of
North America, Inc. (d/b/a ADAMA)
8601 Six Forks Road, Suite 300
Raleigh, NC 27615



FIRST AID
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. 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 a poison control center or doctor. Do not give anything by mouth to an unconscious person.
If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
If 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.
Note to Physician: Probable Mucosal damage may contraindicate the use of gastric lavage.
Have the product container or label with you when calling a poison control center, doctor, or going for treatment. For emergency medical treatment information, call 24-hours a day to 1-877-250-9291.
In case of spills, fires, leaks or accidents call 1-800-535-5053.

STORAGE AND DISPOSAL

DO NOT contaminate water, food, or feed by storage or disposal. **PESTICIDE STORAGE:** Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food and feed. Store in original container and out of reach of children, preferably in a locked storage area. **DO NOT** store above 100°F for extended periods of time. Storage below 20°F can result in formation of crystals. If product crystallizes, store at 50°F to 70°F and agitate to redissolve crystals. If container is damaged or spill occurs, use product immediately or dispose of product and damaged container as indicated below. **PESTICIDE DISPOSAL:** Open dumping is prohibited. Pesticide wastes are toxic. 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, 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 HANDLING: NONREFILLABLE CONTAINERS: Rigid, Nonrefillable containers small enough to shake (i.e. with capacities equal to less than five 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 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 if available, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. 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 a mix tank or collect rinsate at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Once container is rinsed, offer for recycling if available, or puncture and dispose of in a sanitary landfill.

For additional Precautionary Statements, handling, Directions for Use, (and Storage and Disposal), see inside of this booklet

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Net Contents
2.5 gallons



Escanear para Español