

# COP-KLEEN™

## **Algicide/ Bactericide\*/ Fungicide**

for Use on Raw, Citrus and Growing Agricultural Commodities

\*Non-public health bacteria

### **ACTIVE INGREDIENT**

Copper Sulfate Pentahydrate* (CAS No. 7758-99-8).....	19.8%
OTHER INGREDIENTS .....	80.2%
TOTAL .....	100.0%

\*Metallic Copper = 5%

This product weighs 9.9 lb. per gallon - 1.188 kg/l. This product contains 0.5 lbs/gal metallic copper.

## **KEEP OUT OF REACH OF CHILDREN WARNING • AVISO**

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

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

### **MANUFACTURED BY:**

Earth Science Laboratories, Inc.  
903 N 47th Street, Suite 105  
Rogers, AR 72756  
Phone: 800-257-9283

EPA REGISTRATION NO.: 64962-5  
EPA Establishment No.: 64962-NE-001

### FIRST AID

<b>IF IN EYES:</b>	Hold eye open and rinse slowly and gently with water for 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.
<b>IF SWALLOWED:</b>	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 to an unconscious person.
<b>IF ON SKIN OR CLOTHING:</b>	Take off contaminated clothing. Rinse skin immediately with plenty of soap and water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.
<b>NOTE TO PHYSICIAN:</b> Probable mucosal damage may contraindicate the use of gastric lavage.	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact INFOTRAC 1-800-535-5053 for emergency medical treatment.	

### PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

## WARNING

Causes substantial but temporary eye injury. Harmful if swallowed. Harmful if absorbed through skin. Do not get in eyes or on clothing. Avoid contact with skin. Wear protective eyewear (goggles, face shield or safety glasses), long sleeved shirt, long pants, shoes, socks and chemical-resistant gloves made of any waterproof material. Some materials that are chemical-resistant to this product are polyvinyl chloride, polyethylene and viton. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

### PERSONAL PROTECTIVE EQUIPMENT

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

- Long-sleeved shirt
- Long pants
- Shoes plus socks
- Chemical-resistant gloves made of any waterproof material (Chemical Resistance Category A)
- Protective eyewear

### 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 material that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them.

### USER SAFETY RECOMMENDATIONS

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

### ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and aquatic invertebrates. Waters treated with this product may be hazardous to aquatic organisms. Treatment of aquatic weeds and algae can result in oxygen loss from decomposition of dead algae and weeds. This oxygen loss can cause fish and invertebrate suffocation. To minimize this hazard, do not treat more than 1/2 of the water body to avoid depletion of oxygen due to decaying vegetation. Wait at least 14 days between treatments. Begin treatment along the shore and proceed outward in bands to allow fish to move into untreated areas. Consult with the state or local agency with primary responsibility for regulating pesticides before applying to public waters to determine if a permit is required.

Certain water conditions including low pH ( $\leq 6.5$ ), low dissolved organic carbon (DOC) levels (3.0 mg/L or lower) and "soft" waters (i.e. alkalinity less than 50 mg/L) increases the potential acute toxicity to non-target aquatic organisms. The application rates on this label are appropriate for water with alkalinity greater than 50 mg/L. Do not use these application rates for water with less than 50 ppm alkalinity (e.g., soft or acid waters) because trout and other species of fish may be killed under such conditions.

Consult your local state fish and game agency before applying this product to public waters. Permits may be required before treating such waters.

#### **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 requirement specific to your state and tribe, consult the agency responsible for pesticide regulation.

#### **AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and the Worker Protection Standard, 40 CFR part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, and nurseries, and mixers, loaders, applicators, and other 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 the label about personal protective equipment (PPE), restricted re-entry interval, and notification to workers.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) 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. Wear coveralls, protective eyewear, chemical resistant gloves (i.e. gloves made of any waterproof material) and shoes plus socks.

#### **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 allow re-entry into treated areas until sprays have dried.

#### **USE INFORMATION**

COP-KLEEN is a highly soluble formulation. COP-KLEEN is an algacide, bactericide\* and fungicide for use on raw, citrus and growing agricultural commodities.

\*Non-public health bacteria

#### **SPECIFIC DIRECTIONS FOR USE**

For use as a fungicide/bactericide\* on growing agricultural commodities, the following directions apply.

\*Non-public health bacteria

#### **GENERAL INSTRUCTIONS**

COP-KLEEN may be applied with any type of application equipment that gives uniform coverage of all foliage, including ground, aerial and low volume sprayers as specified on this label. Equipment used for application should be PVC or 316L stainless steel. COP-KLEEN is compatible with most fungal and insecticidal biopesticides when applied at least two (2) days before or after application of the biopesticide.

Phytotoxicity – Although COP-KLEEN has been tested on a wide variety of fruits, vegetables and nuts without phytotoxicity, there could be some varieties and cultivars that because of environmental factors and stages of growth could possibly foster systems. The per acre use rate of COP-KLEEN is applicable for dilute spraying. Depending on the equipment used and the specific crop, the spray volume applied per acre will differ. Refer to the Minimum Recommended Spray Volume Table. Complete spray coverage is essential to assure optimum performance from COP-KLEEN. When treating by aerial application or with low volume application equipment, unless you have had specific previous experience, it is advisable to test for compatibility and tolerance to crop injury prior to full scale commercial utilization.

Consult COP-KLEEN label for specific rates and timing of application by crop. Where application rates and intervals are provided in a range (e.g., 2-4 fluid ounces and 7 to 10 days) the higher rates and shorter spray time intervals are recommended when rainfall is heavy and/or disease pressure is high. Use the higher rates for large mature tree crops. The use of a surfactant, such as Cell-U-Wett™ is acceptable for plants having waxy or hairy surfaces. COP-KLEEN works via surface contact with the plants and materials being treated. It is important to ensure that all surfaces are thoroughly wetted. COP-KLEEN does not produce any visible residue or have a distinct odor. It does have a residual, especially if applied with a surfactant.

### SPECIAL PRECAUTIONS

- Do not mix with acidic compounds such as Alliette™ within 14 days before or after application of same.
- This product may be reactive on masonry and metal surfaces such as galvanized roofing. Avoid contact with metal surfaces. Do not spray on cars, houses, lawn furniture, etc.
- Environmental conditions such as extended periods of wet weather, acid rain, etc., which alter the pH of the leaf surface may affect the performance of COP-KLEEN resulting in possible phytotoxicity or loss of effectiveness.
- Do not mix with pot ash.
- It must be determined in the selection process if proper application equipment is available and if the waste associated with its use can be properly handled. Materials used on the construction of application equipment is also an important factor as agricultural chemicals are often reactive with soft metals such as aluminum and even some synthetic materials such as plastics, rubbers, etc. Therefore it is necessary when working with equipment containing these materials, that they are thoroughly flushed with clean water after each days use.

### 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:

- a) 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
- b) 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 (RPZ), backflow preventer 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 COP-KLEEN last. 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.

COP-KLEEN may be added through a traveling system continuously or at the last 30 minutes of solid set or hand moved irrigation systems. COP-KLEEN 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 water to 7 or below. If using stickers, spreaders, insecticides, nutrients, etc., add COP-KLEEN last. 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.

May be added through a traveling irrigation system continuously or at the last 30 minutes of solid set or hand moved irrigation systems. COP-KLEEN 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.

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 COP-KLEEN last. 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. COP-KLEEN may be added through a traveling irrigation system continuously or at the last 30 minutes of solid set or hand moved irrigation systems. COP-KLEEN 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 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 COP-KLEEN last. 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. COP-KLEEN may be added through a traveling irrigation system continuously or at the last 30 of solid set or hand moved irrigation systems. COP-KLEEN 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 see "Minimum Retreatment Interval" column for the shortest interval between applications. 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.

**MINIMUM RECOMMENDED SPRAY VOLUME (GALLONS) PER ACRE WHEN APPLYING COP-KLEEN**

CROP	AERIAL	GROUND	
		DILUTE	CONCENTRATE*
Citrus	10	125	30
Field Crops	3	20	30
Small Fruits	5	150	30
Tree Crops	10	400	50
Vegetables	3	20	30
Vines	5	150	30

\*Pesticide application equipment such as Curtee® or other similar sprayers which are capable of obtaining coverage at low volumes may be used at as low as 20 gpa of spray volume.

The following specific instructions are based on general application procedures. The recommendations of the State Extension Service should be closely followed as to timing, frequency and numbers of sprays per year.

**FROST INJURY PROTECTION  
BACTERIAL ICE NUCLEATION INHIBITOR**

Application of COP-KLEEN 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.

The chart below is used to calculate correct ppm\* of active ingredient (A.I.) per volume of carrier water. These volumes can be used for either conventional or concentrated sprays.

**AMOUNT OF COP-KLEEN PER VOLUME OF WATER  
FOR PROPER PPM\* OF APPLIED ACTIVE INGREDIENT (as Copper)**

PPMs* of A.I.	30 Gallons per Acre	50 Gallons per Acre	100 Gallons per Acre	125 Gallons per Acre	250 Gallons per Acre	500 Gallons per Acre
50	--	--	12.8 fl. oz.	16 fl. oz.	32 fl. oz.	64 fl. oz.
75	--	--	19.2 fl. oz.	24 fl. oz.	48 fl. oz.	96 fl. oz.
100	--	--	25.6 fl. oz.	32 fl. oz.	64 fl. oz.	1 gal.
125	--	16.0 fl. oz.	32.0 fl. oz.	40 fl. oz.	80 fl. oz.	1.25 gal.
150	--	19.2 fl. oz.	38.4 fl. oz.	48 fl. oz.	96 fl. oz.	1.5 gal.
200	16.0 fl. oz.	25.6 fl. oz.	51.2 fl. oz.	64 fl. oz.	1 gal.	2 gal.
250	19.2 fl. oz.	32.0 fl. oz.	64.0 fl. oz.	80 fl. oz.	1.25 gal.	2.5 gal.

\* ppm = parts per million (of copper)

Low volume sprayer should use a minimum of 16 ounces for complete coverage.

**CITRUS**

Crop	Disease	Rate per Acre fl. oz.	Minimum retreatment interval (days)	Instructions
Grapefruit, Kumquat, Lemon, Lime, Orange, Tangelo, Tangerine	Brown Rot	30-70	7	Apply at first indication of rain or first appearance of Brown Rot.
	Greasy Spot, Pink Pitting	25.6-64	7	Apply during mid-summer.
	Scab	25.6-64	7	Apply shortly before trees begin to flush. Re-apply at 2/3 petal fall. Re-apply 4 weeks later, if necessary.
	Canker (Suppression)	12.8-64  **12.6 lbs.	7	Spray flushes 7 to 14 days after shoots begin to grow. Young fruit may require additional applications. Number and timing of applications will be dependent on disease pressure. Under heavy pressure, each new flush of growth should be sprayed. Heavily infected trees should be sprayed with a minimum dosage of 250 ppm with a follow up spray after 7 to 14 days.

\*\*Maximum Annual Load of metallic copper applied per year per acre

**FIELD CROPS**

<b>Crop</b>	<b>Disease</b>	<b>Rate/Acre fl. oz.</b>	<b>Minimum retreatment interval (days)</b>	<b>Instructions</b>
Alfalfa	Cercospora Leaf Spot, Leptosphaerulina Leaf Spot	19.2-32	30	Apply 30 days before each harvest or earlier if disease threatens. NOTE: Spray injury may occur with sensitive varieties such as Lahontan.
		**1.12 lbs.		
Peanut	Cercospora Leaf Spot	19.2-25.6	7	Begin spraying at 35 to 40 days after planting or when disease symptoms first appear and repeat at 7 to 14 day intervals. Reduce sprays to 7 day intervals during humid weather. Use the higher rates when conditions favor disease.
		**4.74 lbs.		
Potato	Early Blight, Late Blight	19.2-32	5	Apply at 5 to 10 day intervals starting when plants are 2 to 6 inches high in locations where disease is light. Add up to 32 fl. oz. per acre when disease is more severe.
		**25.0 lbs.		
Sugar Beets	Cercospora Leaf Spot	19.2-38.4	10	Begin applications when conditions first favor disease development and repeat at 10 to 14 day intervals. Use higher rates when conditions favor disease. Addition of a sticker/spreader is recommended.
		**7.86 lbs.		
Wheat, Barley, Oats	Helminthosporium Spot Blotch, Septoria, Leaf Blotch	19.2-25.6	10	Make first application at early heading and follow with second spray 10 days later. Use the higher rates when conditions favor disease.
		**1.06 lbs.		

\*\*Maximum Annual Load of metallic copper applied per year per acre

**SMALL FRUITS**

<b>Crop</b>	<b>Disease</b>	<b>Rate/Acre fl. oz.</b>	<b>Minimum retreatment interval (days)</b>	<b>Instructions</b>
Blackberry (Aurora, Boysen, Cascade, Chehalem, Logan, Marion, Santiam, Thornless Evergreen)	Anthracnose, Cane Spot, Leaf Spot, Pseudomonas Blight, Purple Blotch, Yellow Rust	32	7	Make fall application after harvest. Apply delayed dormant spray after pruning/training in the spring. If needed, agricultural-type spray oil may be added.
		19.2	7	Apply when leaf buds begin to open and repeat when flower buds show white. If needed, agricultural-type spray oil may be added. NOTE: 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.
Blueberry	Bacterial Canker	33-51.2	7	Make application before fall rains and a second application 4 weeks later. Use the higher rates when conditions favor disease.
	Fruit Rot, Phomopsis Twig Blight	25.6-51.2	7	Dormant Application: Begin applications when bloom buds begin to swell. Make additional applications at 7 to 14 day intervals before blooms open.
		**8.4 lbs.		

\*\*Maximum Annual Load of metallic copper applied per year per acre

*(continued)*

**SMALL FRUITS (cont.)**

Crop	Disease	Rate/Acre fl. oz.	Minimum retreatment interval (days)	Instructions
Raspberry	Anthracnose, Cane Spot, Leaf Spot, Pseudomonas Blight, Purple Blotch, Yellow Rust	32	7	Make fall application after harvest. Apply delayed dormant spray after training in the spring. If needed, agricultural-type spray oil may be added.
	Anthracnose, Cane Spot, Leaf Spot, Purple Blotch, Yellow Rust	19.2 **10.0 lbs.	7	Apply when leaf buds begin to open and repeat when flower buds show white. If needed, agricultural-type spray oil may be added. NOTE: 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.
Strawberry	Angular Leaf Spot ( <i>Xanthomonas</i> ), Leaf Blight, Leaf Scorch, Leaf Spot	19.2-25.6 **8.19 lbs.	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. NOTE: Discontinue applications if signs of crop injury appear.

\*\*Maximum Annual Load of metallic copper applied per year per acre

**TREE CROPS**

Crop	Disease	Rate/Acre fl. oz.	Minimum retreatment interval (days)	Instructions
Almond, Apricot, Cherry, Plum Prune	Bacterial Blast ( <i>Pseudomonas</i> ), Bacterial Canker, Coryneum Blight (Shot Hole)	51.2-64	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. NOTE: Foliar injury may occur from post-bloom sprays on almonds, especially on NePlus varieties.
	Blossom Brown Rot, Coryneum Blight (Shot Hole)	51.2-64 on almond, All others 60-90	5	Apply during early bloom. Do not apply after full bloom or injury may occur. Use the higher rates when rainfall is heavy and disease pressure is high.

\*\*Maximum Annual Load of metallic copper applied per year per acre

*(continued)*

**TREE CROPS (cont.)**

Crop	Disease	Rate/Acre fl. oz.	Minimum retreatment interval (days)	Instructions
Apple	Anthracnose, Blossom Blast, European Canker ( <i>Necria</i> ), Shoot Blast ( <i>Pseudomonas</i> )	51.2-64	N/A only one application permitted per year.	Apply before fall rains. Use the higher rates when conditions favor disease. NOTE: Use on yellow varieties may cause discoloration. To avoid discoloration, pick before spraying.
	Apple Scab, Fire Blight	51.2-64	N/A only one application permitted per year.	Make application between silver-tip and green-tip. Apply as a full cover spray for early season disease suppression. NOTE: Moderate to severe crop injury may occur from late application; discontinue use when green tip reaches ½ inch.
	Apple Scab	19.2-32	5	Extended spray schedule where fruit finish is not a concern: Continued applications may be made at 5 to 7 day intervals between ½ inch green-tip and first cover spray. NOTE: Moderate to severe crop injury may result from this extended spray schedule. It is not intended for fresh market apples or for apples where fruit finish is a concern as it is likely to cause fruit russetting.
	Fire Blight	Low 19.2-25.6	5	
	Collar Rot, Crown Rot	32 **16.0 lbs.	N/A only one application permitted per year.	Mix 100 gallons of water. Apply 4 gallons of solution 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.
Avocado	Anthracnose, Blotch, Scab	51.2-64 **18.9 lbs.	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.
Coffee	Coffee Berry Disease ( <i>Collectotrichum coffeanum</i> )	38.4-64	14	Apply first spray after flowering and before onset of long rains and then at 14 - 28 day intervals until picking. Use the higher rates when conditions favor disease.
	Bacterial Blight ( <i>Pseudomonas syringae</i> )	38.4-64	14	Begin spray program before the onset of long rainy periods and continue throughout the rainy season at 14 to 21 day intervals. The critical time for spraying to control 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> )	19.2-32 **12.6 lbs.	14	Apply before the onset of rain and then at 14 - 21 day intervals 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> )	19.2 **12.6 lb.	14	Use concentrate or dilute spray. Begin treatment at the start of wet season and continue at monthly intervals for three applications.

\*\*Maximum Annual Load of metallic copper applied per year per acre

*(continued)*

**TREE CROPS (cont.)**

Crop	Disease	Rate/Acre fl. oz.	Minimum retreatment interval (days)	Instructions
Pistachio	Botryosphaeria Panicle and Shoot Blight, Late Blight ( <i>Alternaria alternata</i> ), Septoria Leaf Blight	32-64 **8.4 lbs.	14	Make initial application at bud swell and repeat on a 14 to 28 day schedule. If disease conditions are severe, use the higher rates and shorter spray intervals.
Walnut	Walnut Blight	38.4-64 **25.2 lbs.	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. NOTE: Adequate control may not be obtained when copper tolerant species of <i>Xanthomonas</i> bacteria are present.

\*\*Maximum Annual Load of metallic copper applied per year per acre

**VEGETABLES**

Crop	Disease	Rate/Acre fl. oz.	Minimum retreatment interval (days)	Instructions
Carrot	Alternaria Leaf Spot, Cercospora Leaf Spot	19.2 **5.0 lb.	7	Begin applications when disease first threatens and repeat at 7 to 14 day intervals depending on disease severity.
Crucifers (Broccoli, Brussel Sprout, Cabbage, Cauliflower, Collard Greens, Mustard Greens, Turnip Greens)	Black Leaf Spot ( <i>Alternaria</i> ), Black Rot ( <i>Xanthomonas</i> ), Downy Mildew	19.2-25.6 **2.65 lbs.	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. Use the higher rates when conditions favor disease. NOTE: 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)	Alternaria Leaf Spot, Angular Leaf Spot, Anthracnose, Downy Mildew, Gummy Stem Blight, Powdery Mildew, Watermelon, Bacterial Fruit Blotch (suppression)	19.2-25.6 **5.25 lbs.	5	Begin applications prior to disease development and continue while conditions are favorable for disease development. Repeat at 5 to 7 day intervals. Use the higher rates when conditions favor disease. NOTE: Crop injury may occur from application at higher rates and shorter intervals. Discontinue use if injury occurs.
Eggplant	Alternaria Blight, Anthracnose, Phomopsis	19.2 **7.9 lbs.	7	Begin applications prior to development of disease symptoms. Repeat sprays at 7 to 10 day intervals depending on disease severity.
Onion, Garlic	Bacterial Blight, Downy Mildew, Purple Blotch	19.2 **6.0 lbs.	7	Begin when plants are 4 to 6 inches high and repeat at 7 to 10 day intervals depending on disease severity. Can cause phytotoxicity to leaves.

\*\*Maximum Annual Load of metallic copper applied per year per acre

*(continued)*

**VEGETABLES (cont.)**

<b>Crop</b>	<b>Disease</b>	<b>Rate/Acre fl. oz.</b>	<b>Minimum retreatment interval (days)</b>	<b>Instructions</b>
Pea	Powdery Mildew	19.2-25.6 **3.95 lbs.	7	Begin applications when disease symptoms first appear and repeat at weekly intervals. Use the higher rates when conditions favor disease.
Spinach	Anthracnose, Blue Mold, Cercospora Leaf Spot, White Rust	19.2-25.6 **3.95 lbs.	7	Begin application when disease first appears or when conditions favor disease development. Repeat at 7 to 10 day intervals. Use the higher rates when conditions favor disease. NOTE: Flecking may occur on spinach leaves.
Tomato (Processing)	Anthracnose, Bacterial Speck, Bacterial Spot, Early Blight, Gray Leaf Mold, Late Blight, Septoria Leaf Spot	19.2-32 **17.4 lbs.	3	Begin applications when disease first threatens and repeat at 3 to 10 day intervals depending on disease severity. Use the higher rates when conditions favor disease.
Tomato (Fresh Market)	Anthracnose, Bacterial Speck, Bacterial Spot, Early Blight, Gray Leaf Mold, Late Blight, Septoria Leaf Spot	19.2-32 **8 lbs.	3	Begin applications when disease first threatens and repeat at 3 to 10 day intervals depending on disease severity. Use higher rates when conditions favor disease.
Watercress	Cercospora, Leaf Spot	19.2 **2.12 lbs.	7	Begin applications when plants are first established in the field, repeating at 7 to 14 day intervals depending on disease severity. Do not exceed four applications per crop. Apply using ground spray equipment at no less than 50 gallons of spray solution per acre.

\*\*Maximum Annual Load of metallic copper applied per year per acre

**VINES**

<b>Crop</b>	<b>Disease</b>	<b>Rate/Acre fl. oz.</b>	<b>Minimum retreatment interval (days)</b>	<b>Instructions</b>
Grape	Black Rot, Downy Mildew, Phomopsis, Powdery Mildew	19.2-32 **20.0 lbs.	3	Begin applications at bud break with subsequent applications throughout the season depending on disease severity. Use the higher rates when conditions favor disease. NOTE: Foliage injury may occur on copper sensitive varieties such as Concord, Delaware, Niagra and Rosette.

\*\*Maximum Annual Load of metallic copper applied per year per acre

### MISCELLANEOUS

Crop	Disease	Rate/Acre fl. oz.	Minimum retreatment interval (days)	Instructions
Chives	Downy Mildew	19.2 **2.65 lbs.	7	Begin application when plants are established in the field. Repeat every 7 to 10 days depending on disease conditions.
Dill	Phoma Leaf Spot, Rhizoctonia Foliage Blight	19.2-25.6 **3.95 lbs.	7	Begin applications when plants are first established in the field and repeat at 7-10 day intervals depending on disease severity and environmental conditions. Use the higher rates for severe disease.

\*\*Maximum Annual Load of metallic copper applied per year per acre

### APPLICATION AND HANDLING EQUIPMENT

Application, handling or storage equipment MUST consist of fiberglass, PVC, polypropylene, viton, corrosion resistant plastics or stainless steel. Never use mild steel, nylon, brass or copper around COP-KLEEN. Always rinse and clean equipment thoroughly each night with plenty of fresh, clean water.

## STORAGE AND DISPOSAL

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

**PESTICIDE STORAGE:** Store in a safe place away from pets and keep out of the reach of children. Store away from excessive heat. COP-KLEEN will freeze. Always store COP-KLEEN above 32 degrees F. Do Not Freeze. Freezing may cause product separation. Always keep container closed. Store COP-KLEEN in its original container only. Keep away from galvanized pipe, and any nylon storage or handling equipment.

**PESTICIDE DISPOSAL:** Pesticide wastes are acutely hazardous. Improper disposal of excess COP-KLEEN 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. In the event of spill, neutralize with limestone or baking soda before disposal. May deteriorate concrete.

**CONTAINER HANDLING:** Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying.

**Containers with capacities less than or equal to 5 gallons:** 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 2 more times. Offer for recycling if available. If recycling is not available, 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.

**Containers with capacities greater than 5 gallons:**

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least 1 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 2 more times. Offer for recycling if available. If recycling is not available, 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.

**Pressure rinse as follows (all sizes):** 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.

**Refillable container (275 gallon & Bulk):** 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% 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 2 more times. 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.

**IMPORTANT**  
**READ BEFORE USING**  
**LIMITED WARRANTY AND LIMITATION OF REMEDIES**

Read the entire Directions for Use, Limited Warranty and Limitation of Remedies (including limitations on 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.

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 Earth Science Laboratories, Inc. To the extent consistent with applicable law, all such risks shall be assumed by the user or buyer.

To the extent consistent with applicable law, seller warrants that the product conforms to the chemical description and is reasonably fit for the purpose stated on the label for use under normal conditions, but makes no other warranties of FITNESS OR MERCHANTABILITY expressed or implied, or any other warranty if the product is used contrary to the label instructions, or under conditions not foreseeable to the seller. To the extent consistent with applicable law, the seller shall not be liable for more than the cost of this product to the buyer and will in no event be liable for any consequential, special or indirect damages connected with the use or handling of this product. This product is offered and the buyer or user accepts it subject to the foregoing terms which may not be varied. Seller makes no warranty for product which has been frozen.





# COP-KLEEN™

## Algicide/Bactericide\*/Fungicide

for Use on Raw, Citrus and Growing Agricultural Commodities

\*Non-public health bacteria

### ACTIVE INGREDIENT

Copper Sulfate Pentahydrate*(CAS No. 7758-99-8)...	19.8%
OTHER INGREDIENTS .....	80.2%
TOTAL .....	100.0%

\*Metallic Copper = 5%

This product weighs 9.9 lb. per gallon - 1.188 kg/l. This product contains 0.5 lbs/gal metallic copper.

## KEEP OUT OF REACH OF CHILDREN WARNING • AVISO

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

### FIRST AID

**IF IN EYES:** Hold eye open and rinse slowly and gently with water for 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 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 to an unconscious person.

**IF ON SKIN OR CLOTHING:** Take off contaminated clothing. Rinse skin immediately with plenty of soap and water for 15 to 20 minutes. Call a poison control center or doctor for 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 or doctor, or going for treatment. You may also contact INFOTRAC 1-800-535-5053 for emergency medical treatment.

**See inside label booklet for additional Precautionary Statements, and Directions for Use.**

### STORAGE AND DISPOSAL

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### MANUFACTURED BY:

Earth Science Laboratories, Inc.  
903 N 47th Street, Suite 105  
Rogers, AR 72756  
Phone: 800-257-9283

### NET CONTENTS:

- 2.5 Gallons
- 30 Gallons
- 55 Gallons
- 275 Gallons

EPA REGISTRATION NO.: 64962-5

EPA Establishment No.: 64962-NE-001

Batch No.:

PEEL BACK BOOK HERE