

NOV 10 1987

Mr. Arthur F. Gohlke
Tennessee Chemical Company
3400 Peachtree Road NE., Suite 401
Atlanta, GA 30326

Dear Mr. Gohlke:

Subject: Amendments - Revised Labeling for Basic Copper Sulfate Products
Tennessee Brand Tri-Basic Copper Sulfate
EPA Registration No. 1109-13
Flowable Tri-Basic Copper
EPA Registration No. 1109-34 ✓
Citco Tri-Basic Copper Sulfate 50XF
EPA Registration No. 1109-35
Tri-Basic Copper Fungicide
EPA Registration No. 1109-36
Tennessee Brand Tri-Basic Copper DG
EPA Registration No. 1109-38
Your Submission Dated September 24, 1987
EPA Received Date October 26, 1987

The labeling for product 1109-36 is not acceptable. We are unable to review revised draft labeling with previously stamped acceptable markings. Since this is a homeowner product, delete Endangered Species labeling and references to chemigation, add the dermal sensitization statement from the Registration Standard, delete old Environmental Hazards language from the Precautionary Statements section, and submit five (5) copies of revised draft labeling with your response.

The labeling for products 1109-13, -34, -35, and -38 is acceptable provided that you:

1. Make the following changes before releasing the products for shipment bearing amended labeling.
 - a. For all products except 1109-34, modify the eye statement to read: "Causes substantial but temporary eye injury." Also correct misspellings in Spanish text on front panel and modify first aid for eyes to read: "Get medical attention."

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- b. Delete Endangered Species labeling since this requirement has been deferred for these copper sulfate uses until further notice from the Agency.
 - c. Move the Pesticide Disposal statement "Waste resulting from use of this product . . ." from the Storage to the Disposal section. Delete the paragraph beginning "Pesticide wastes are toxic" This text is inappropriate for copper sulfate products.
 - d. For product 1109-34, add an lb copper per gallon statement to the ingredient section. Change "WARNING" to "CAUTION" in the Reentry text; Add Container Disposal language appropriate for metal and plastic containers. (Refer to PR Notice 83-3 for guidance.)
2. Submit one (1) copy of final printed labeling incorporating the changes above. For products not presently being marketed, submit draft versions with the changes.

A stamped copy of each label is enclosed for your records.

We note that the phrase "Manufacturing or formulating algicides . . ." was added to the front panel for product 1109-13 when revised labeling was resubmitted in April 1987. According to our records, we have not previously accepted use of basic copper sulfate as an algicide except when applied to ornamental trees. If additional algicidal uses are proposed, we will consider them appropriate under the Federal Insecticide, Fungicide, and Rodenticide Act regulations.

Sincerely yours,

Richard F. Mountfort *RFM*
Product Manager (23)
Fungicide-Herbicide Branch
Registration Division (TS-767C)

Enclosures

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FRONT PANEL

Net Contents _____ Gallons

FLOWABLE TRI-BASIC COPPER

ACTIVE INGREDIENT: Basic Copper Sulfate * . . . 54%
INERT INGREDIENTS 46%
(* Metallic copper equivalent . . . 29.0%)

1 lb. copper per gallon
Use this Product in accord with this label:

- Application as fungicide on crops on this label.

12 pts

Keep out of reach of children

CAUTION ✓

18 pts

12 pts

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS:

OK Causes temporary eye injury. Do not get into eyes or on clothing. Wear goggles. Harmful if swallowed. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. May cause skin sensitization in certain individuals.

ENVIRONMENTAL HAZARDS: ✓

This product is toxic to fish and aquatic organisms. Do not apply directly to water. Drift and runoff from treated areas may be hazardous to fish and aquatic organisms in adjacent aquatic sites. Do not contaminate water by cleaning of equipment or disposal of wastes.

12 pts

STATEMENT OF PRACTICAL TREATMENT ✓

IF IN EYES, flush eyes with water. Seek medical attention if irritation persists! IF SWALLOWED, drink 1 or 2 glasses of water and induce vomiting by touching the back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.

Do not apply this product in such a manner as to directly or through drift expose workers or other persons. The area being treated must be vacated by unprotected persons until spray has dried.

*30
Opr. Sml. Pk. 100
Copper expressed 100%
* From 60% Copper*

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with comments
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1109-34

Use the higher rates and shorter spray intervals if disease potential is heavy. Spray to cover all plant surfaces. "

See reverse side for other precautions, mixing directions and use recommendations. For specific information regarding the proper strength, time of application, and frequency of application to any particular crop in a local area consult the State Agricultural Experiment Station or State Extension Service Specialists. Observe all cautions and limitations on the label of all products used in mixtures.



TENNESSEE CHEMICAL COMPANY
Copperhill, Tennessee 37317

EPA Reg. No. 1109-34 EPA Est. No.
Form No. 9-34A87

ADDITIONAL PRECAUTIONARY STATEMENTS

12 pts

ENVIRONMENTAL HAZARD STATEMENTS

8 pts

This pesticide is toxic to fish and aquatic organisms. Do not apply directly to water. Drift and runoff from treated areas may be hazardous to fish and aquatic organisms in adjacent aquatic sites. Do not contaminate water by cleaning of equipment or disposal of wastes.

8 pts

ENDANGERED SPECIES RESTRICTIONS: It is a violation of Federal laws to use any pesticide in a manner that results in the death of an endangered species or adverse modification of their habitat.

The use of this product may pose a hazard to certain Federally designated endangered species known to occur in specific areas within the following counties:

<u>State</u> (Bulletin No.)	<u>Species</u>	<u>Counties Where Found</u>
California (EPA/ES-85-13)	Solano Grass	Solano
Tennessee (EPA/ES-85-04)	Slackwater Darter	Lawrence, Wayne, Hancock
(EPA/ES-85-07)	Freshwater Mussels	Claiborne, Hawkins, Sullivan
Alabama (EPA/ES-85-05)	Slackwater Darter	Lauderdale, Limestone, Madison
Virginia (EPA/ES-85-06)	Freshwater Mussels	Grayson, Smyth, Scott, Washington, Lee

Before using this product in the above counties you must obtain the EPA Bulletin specific to your area. This Bulletin identifies areas within these counties where the use of this pesticide is prohibited, unless specified otherwise. The EPA Bulletin is available from either your County Agricultural Extension Agent, the Endangered Species Specialist in your State Wildlife Agency Headquarters, or the appropriate Regional Office of the U.S. Fish and Wildlife Service. THIS BULLETIN MUST BE REVIEWED PRIOR TO PESTICIDE USE.

No longer required

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

12 pts

RE-ENTRY STATEMENT

Do not enter treated area without protective clothing until sprays have dried. Because certain states may require more restrictive re-entry intervals for various crops treated with this product, ~~consult your~~ State Department of Agriculture for further information. Written or oral warnings must be given to workers who are expected to be in a treated area or in an area about to be treated with this product. The oral warning should be that workers shall not be in field during spraying and not return until sprays have dried on plants. If workers must be in field during this time, workers must wear goggles for eye protection and protective clothing including a hat or similar head covering, long sleeve shirt, long legged trousers, or a coverall type garment, all of closely woven fabric covering the body, arms, and legs, shoes and socks. If accidentally exposed, if in eyes flush eyes with plenty of water; if on body remove by washing and wash clothes before reuse. When oral warnings are given, warnings shall be given in a language customarily understood by workers. Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers. Written warnings must include the following information: WARNING. Area treated with basic copper sulfate on (date of application). Do not enter without appropriate protective clothing until spray in treated area has dried on plants.

CAUTION

12 pts

12 pts

Storage and Disposal

STORAGE: Store product in a secure dry place. Do not allow this product to freeze. Store at temperatures above 40° F. When opening, closing or handling open packages, or pouring product, wear goggles to prevent accidental eye contact. Spilled product should be swept up and used if clean. If product cannot be recovered and used, solidify by using an adsorbent and dispose of on site and/or waste resulting from use of this product may be disposed of on site or at an approved waste disposal facility. Store product only in original container. During storage, store pesticides separately to prevent cross contamination of other pesticides, fertilizers, food and feed.

12 pts

DISPOSAL: Do not contaminate water, food, or feed by storage or disposal. Do not reuse this container. Completely empty container into application equipment. Then dispose of empty container in a sanitary landfill or by incineration, or if allowed by State and local authorities, by burning, stay out of smoke.

Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixtures, 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 Hazardous Waste representative of the nearest EPA Regional Office for guidance.

Mixing Directions and Recommendations For Use on Growing Crops.

Mixing Sprays: Fill the spray tank about 1/3 full of water and with agitator running add the required amount of Flowable Tri-Basic Copper. Keep agitator running while adding remaining water and ~~any other products to the spray tank.~~ Continue agitation until spraying is finished and tank has been emptied. When mixed with other products proven or known to be compatible, generally add wettable powders first, followed in order by flowables, followed by emulsifiable concentrates.

Applying Spray Mixture: On most crops sprays can be applied with conventional dilute sprays, concentrate sprays, and aerial application unless specifically prohibited on the label. Recommended use rates are generally stated in ^{pints or quarts} of Flowable Tri-Basic Copper per acre sprayed. When using each type of sprayer follow that equipment manufacturer's recommendation, or that of the State Extension Service for the volume of spray water per acre on each crop. The recommended rate of Flowable Tri-Basic Copper for each crop should be mixed in sufficient spray water for thorough coverage of the crop being sprayed. The following spray volumes are general reference suggestions.

For conventional dilute spray apply spray to point of spray run off. On vegetable and field crops this is usually 100 or more gallons per acre and 250 to about 1000 gallons per acre for fruits and nuts depending on tree type, size and foliage.

For concentrate sprays volume depends on the concentration used and may approach that of a dilute volume. However generally on vegetable and field crops, use 5 or more gallons spray per acre, with 20 to about 40 gallons per acre being typical, and on fruits and nut trees use 25 or more gallons per acre depending on concentration and equipment used.

For aerial spray use 3 to 15 gallons per acre.

Do not apply this product through any type of irrigation system.

Flowable Tri-Basic Copper can be applied up to day of harvest.

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Water - 87-81

FRUITS AND NUTS

Almonds: Brown rot and Shot hole - Conventional dilute spray - Use 2 to 2-1/2 quarts in 100 gallons water with 1 gallon sticker and apply 350 to 400 gallons per acre. Bud sprays for control of Brown rot and Shot hole should be applied at pink bud through popcorn stage. Do not spray after trees are in leaf. As a dormant spray for control of Shot hole and Brown rot apply December 15 to January 15. Concentrate sprayers - Use 1-1/8 to 1-1/2 gallons combined with 1 to 2 gallons sticker and apply as above in 25 to 50 gallons water per acre. Note: Use 1-1/2 gallons per acre through swelling buds and 1-1/8 gallons per acre in popcorn stage. With aerial spray during the dormant season for control of Shot hole and Brown rot, apply 2 to 2-1/2 gallons per acre in 20 gallons of water combined with a spreader-sticker.

Apricots: Brown rot and Shot hole - Conventional dilute spray - Use 2 to 2-1/2 quarts per 100 gallons water combined with 1/2 to 1-1/2 gallons sticker. As a dormant spray for control of Shot hole disease apply November 15 to January 15. Bud sprays for control of Brown rot should be applied through swelling buds and popcorn stage. Do not spray when trees are in leaf. Concentrate spray - Use 1-1/4 to 1-1/2 gallons combined with 1 to 1-1/2 gallons sticker per acre and apply as above. Note: Use 1-1/2 gallons per acre through swelling buds and reduce to 1-1/4 gallons in popcorn stage. When bud blight is a problem, apply the maximum rate shown above after most of the leaves have fallen, usually in November and December, but ahead of fall rains.

Avocados - Anthracnose, Scab, Blotch (Cercospora spot) - Use 3 pints per 100 gallons water. Begin treatment when blossom buds open. Repeat at monthly intervals making last spray 140 days after bloom. Addition of a spreader-sticker such as Nu-Film 17, Triton B-1956, or similar types at their manufacturer's recommended rate will enhance disease control effectiveness.

Berries (Blackberries, Boysenberries, Dewberries, Loganberries, Raspberries): Anthracnose - Use 1 quart per 100 gallons of water. Begin spray when leaf buds begin to open. Repeat when flower buds show white and continue at 10 to 14 day intervals. Leaf and Cane spot and Yellow rust - In spring sprays use 1 quart per 100 gallons of water and apply when leaf buds begin to open and repeat when flower buds show white. Also make a post-harvest spray after pruning, but before fall rains begin to fall, using 3 quarts per 100 gallons water combined with 1 to 1-1/2 gallons sticker.

Cherries (South): Brown rot, Blossom blight - Use 2 to 2-1/2 quarts per 100 gallons water plus 1/2 to 1 gallon spreader-sticker. Apply at popcorn and late bloom stages. In late bloom spray add 5 lbs. fresh hydrated spray lime per 100 gallons. For Leaf spot apply 2 to 2-1/2 quarts plus 5 lbs. of spray lime per 100 gallons applied at petal fall. For Shot hole - Use 2 to 2-1/2 quarts per 100 gallons plus 1/2 to 1 gallon sticker and apply as a dormant spray.

Citrus: Brown rot - Use 1 pint per 100 gallons water by dilute spray or 1/4 gallon per acre in 75 gallons water by concentrate sprays. In areas where copper spray injury has previously occurred add 1/2 lb. of fresh high quality spray lime for each lb. of Flowable Tri-Basic Copper used. Apply at first indication of rain or first appearance of Brown rot. Repeat as needed to protect during wet weather.

Citrus (Florida and Texas) - Melanose and Greasy spot (or pink-pitting of grapefruit) - Use 1-1/2 pints per 100 gallons water by dilute spray. With aerial or concentrate sprays use 5 to 8 quarts per acre diluted to the proper concentration for the specific type sprayer used, but do not use less than 10 gallons per acre. For melanose control apply 1 to 3 weeks after petal fall. Repeat 4 weeks later if necessary. For greasy spot (or pink-pitting) make a summer spray (June to July). Sulfur, wettable or flowable, may be included in sprays for melanose. A spreader-sticker may be added if desired.

Citrus (Florida only) - limes - Red Alga - Mix 1-1/2 pints per 100 gallons of water applied as a dilute ground spray. Apply in the early summer (June) as a preventative spray. Repeat in late summer (early August) to control new colonies. A spreader-sticker may be added if desired.

Filberts - Filbert or Bacterial blight - Mix 3 quarts in 100 gallons of water adding a suitable spreader-sticker and apply by dilute ground spray. Make first application in late August or early September before first heavy fall rains. If heavy rains continue during fall and early winter, repeat application when 3/4 of leaves have dropped.

Grapes: Anthracnose, Black rot, Downy mildew - Dilute spray - Use 1 quart per 100 gallons water. Make first application when new growth is 1/2 inch long and repeat every 10 to 14 days. Concentrate spray - Use 2 to 2-1/2 quarts per acre in sufficient water for good coverage and apply as stated above.

Mangos - Anthracnose - Mix 3 pints per 100 gallons water. Begin treatment when panicles are about 2 inches long. Repeat weekly until fruit set and then continue sprays monthly through September. This will require about 12 applications. Addition of a spreader-sticker, such as Nu-Film 17, Triton B-1956 or similar types at their manufacturer's recommended rate will enhance disease control.

Olives: Leaf spot (Peacock spot) - Use 2 to 2-1/2 quarts per 100 gallons water and apply in late October. Note: In areas with 10 inches or less rainfall per year, use only 1 quart per 100 gallons. Concentrate sprays - Use 1-1/2 gallon per acre in not less than 40 gallons water. Read and follow above note on rainfall limitation.

Peaches and Nectarines: Peach blight (Shot hole), Leaf curl and Brown rot, Blossom and Twig blight - Dilute spray - Use 2 to 3 quarts per 100 gallons water plus 1 to 1-1/2 gallons sticker. Concentrate sprays - Use 1-1/2 to 2 gallons per acre plus 1 to 1-1/2 gallon sticker in 25 to 50 gallons water per acre. The fall dormant spray for Leaf curl and Shot hole must be applied before the fall rains begin - usually from November 15 to December 15. Spring bud sprays for Brown rot, Leaf curl, and Shot hole should be applied before the foliage buds swell and again in full pink bud stage. Do not apply after pink bud stage or damage to the flowers may result. (Optimum spray time to control Brown rot is the spray at full pink bud stage.) For Leaf curl control application must be made before foliage buds swell. Consult your State Agricultural Experiment Station. To aid in control of peach Bacterial spot, apply 3 pints per 100 gallons water plus sticker after leaves begin to fall for dormant season.

California only: For Blight and Leaf curl control - 2 to 2-1/2 gallons in 20 gallons of water with sticker may be applied by aircraft to one acre during dormant season.

Pears - Fire blight (Western U.S.) - Use 1/2 pint per 100 gallons of water. Apply 400 gallons spray per acre. With concentrate sprays use 2 pints per acre in recommended quantities of water. Apply at 10% bloom and repeat at 5 to 7 day intervals during bloom. Do not use on D'Anjou, Comice, or Seckel varieties.

Plums and Prunes: Brown rot, Shot hole - Use 2 to 2-1/2 quarts plus 1 to 1-1/2 gallon sticker per 100 gallons water. For Shot hole control apply as a dormant in November or December before heavy fall rains begin. For Brown rot control apply at early green bud or full popcorn stages. Concentrate spray - Use 1-1/2 gallons plus 1 to 1-1/2 gallons sticker in 25 to 50 gallons water and apply to one acre.

California only: For aircraft spray to control Shot hole and Brown rot blossom blight apply 2 to 2-1/2 gallons plus sticker in 20 gallons water and apply to one acre during dormant season.

Walnuts - Bacterial blight (Western U.S.) - Apply 1-1/2 gallons per acre. In concentrate sprayers use 100 gallons spray per acre. Make two treatments, the first in early prebloom (1% pistillate, not catkin, blooms showing) and the second in late prebloom when 10 to 20% pistillate, not catkin, blooms are showing. Repeat applications for blight control 3 to 4 times during the growing season if necessary to control disease.

VEGETABLE AND FIELD CROPS

Mixing instructions: Mix recommended amounts of Flowable Tri-Basic Copper for one acre in sufficient water for good coverage with each type of sprayer. With dilute ground sprayer, generally apply 20 to 50 gallons spray per acre. With concentrate sprayers generally apply 20 to 50 gallons spray per acre. With aerial sprayers generally apply 5 to 10 gallons spray per acre, but do not use less than 5 gallons spray mixture per acre. Consult the manufacturer for recommended water volumes per acre for a given sprayer.

Beans (Green and dry): Bacterial blights - Apply 1 to 2 quarts per acre. Begin treatment when disease is first expected and repeat at 7 to 10 day intervals until harvest of green beans or up to 6 sprays on dry beans.

Carrots: Downy mildew, Cercospora and Alternaria leaf blight - Use 1-1/2 to 2 quarts per acre. Begin treatment when disease first appears and repeat at 7 to 10 day intervals.

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Celery - Early blight - Use 2 quarts per acre. Begin treatment when disease is first expected or first appears. Repeat at 7 day intervals up to harvest. Note: For best disease control tank-mix Flowable Tri-Basic Copper with Bravo, Dithane M-45, Maneb, or Manzate, all at labeled rates as the tank-mix will improve disease control over any of these products used alone at labeled rates.

Cucurbits (cucumbers, squash, watermelons, cantaloupes) - Downy mildew, Powdery mildew - Use 1 quart per acre. Begin spray treatment 2 weeks weekly before disease is first expected or when it first appears and repeat weekly as long as needed to control diseases

Onions: Purple blotch (California only) and Downy mildew - Use 1-1/2 to 2 quarts per acre. Begin when plants are 4 to 6 inches and repeat at 7 to 10 day intervals.

Peanuts: Cercospora leaf spot - Use 1 to 1-1/2 quarts per acre. Begin when disease is first expected or appears. Repeat at 10 to 14 day intervals. Note: The addition of 2 lbs. of wettable or flowable sulfur per acre in a tank-mix will enhance leaf spot control.

Peppers - Bacterial spot - Use 3 to 4 pints per acre. Start sprays in seedbed or field and continue at 7 day intervals. Note: It is very important that sprays begin before disease appears and continue sprays during the critical fruiting period for best control.

Potatoes: Early and Late blights - Use 1-1/2 to 3 quarts per acre. Begin when plants emerge and repeat at 7 to 10 day intervals.

Spinach: Anthracnose, Cercospora leaf spot, Downy mildew, White rust - Use 1 to 2 quarts per acre. Begin when disease first appears. Repeat at 7 to 10 day intervals.

Sugar Beets: Cercospora leaf spot - Use 2 quarts per acre. Begin when disease first appears and repeat every 7 to 10 days.

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Tomatoes: Bacterial spot, Bacterial canker (Southeastern States Only), Early and Late Blight - Use 2 to 4 pints per acre. Begin in seedbed or field before disease first appears. Repeat at 7 to 10 day intervals. Note: Flowable Tri-Basic Copper is usually tank-mixed with Bravo, Dithane M-45, Maneb, Manzate 200, or Dyrene all at labeled rates to control a broad range of tomato diseases. Observe all cautions and limitations on the label of all products used in mixtures. For Bacterial speck use 2 pints per acre plus the recommended rate of Dithane M-45, Manzate 200 or Maneb for best control, or use 4 pints Flowable Tri-Basic Copper.

SEED TREATMENT

Rice: Seedrot and damping off - (Water planted) - Apply a slurry containing 1/8 pint Flowable Tri-Basic Copper to each 100 lbs. of rice seed using various tumblers or mixing devices generally used to treat seeds with powdered pesticides. Do not use treated seed for feed or food purposes.