



Carbon Defense®

POTASSIUM SILICATE
FUNGICIDE/MITICIDE/INSECTICIDE

For use on vegetables, fruits, nuts, vine crops, field crops, ornamentals and turf for control of fungal diseases, and suppression of spider mites, aphids, whiteflies and other insects.

ACTIVE INGREDIENT		
Potassium silicate	11.14%	
OTHER INGREDIENTS	88.86%	
TOTAL	100.00%	

Net Contents: 2.5 Gallon/9.5 Liters (10.1 lbs/1.2 kgs)

GROUP	M	FUNGICIDE
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KEEP OUT OF REACH OF CHILDREN
CAUTION

FIRST AID

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

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.

HOTLINE NUMBER: Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact the National Product Safety Hotline 1-866-359-5667 day or night, for emergency medical treatment information.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

CAUTION: Harmful if swallowed. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove contaminated clothing and wash before reuse. Causes moderate eye irritation. Do not get in eyes or on clothing. Wear goggles or face shield when handling concentrate. After product is diluted in accordance with the directions for use, goggles or face shield are not required. Avoid contact with skin, eyes or clothing. Wear appropriate personal protective equipment (PPE).

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes and socks
- Chemical resistant gloves
- Protective eyewear

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

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing immediately if pesticide gets inside.
- 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

For terrestrial uses, do not apply directly to water, or 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 washwaters or rinsate.

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. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

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

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

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

NON-AGRICULTURAL USE REQUIREMENTS

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

GENERAL USE INFORMATION

Carbon Defense is a broad spectrum preventative fungicide for use on field crops, fruits, nuts, vines and ornamentals. Optimum disease control is obtained when the fungicide is applied on a regularly scheduled preventative spray program. Carbon Defense also provides suppression of mites, aphids, whiteflies and other insects. Optimum performance is achieved using a sufficient volume of water to ensure complete coverage of all stems and foliage.

Since all combinations or sequences of pesticide applications including surfactants and adjuvants have not been tested, before wide spread application, test a small area to be sprayed first to make certain that no phytotoxicity occurs.

Avoid contact with glass. Remove promptly from glass surfaces. Read the entire label before using Carbon Defense. Consult your State Agricultural Experimental Station or Extension Service Specialist for additional information on application timing, rates and any additional requirements or restrictions.

MIXING INSTRUCTIONS

Be sure the sprayer is clean and not contaminated with other materials prior to use. When using an agitated spray tank fill tank 1/2 to 3/4 full with clean water and start agitation. Be certain that the agitation system is working properly. With the agitator running add the required amount of Carbon Defense to the tank. If tank mixing with other materials, add them to the tank and continue agitation. Continue filling tank with the remainder of the water. Agitate until mixed thoroughly and avoid excessive foaming. Mix as needed; do not store diluted material overnight.

COMPATIBILITY

Carbon Defense is compatible with most commonly used agricultural pesticides. If compatibility is in question, use the compatibility jar test before mixing a whole tank. Dilute Carbon Defense to its use rate and then with stirring add the other components in the appropriate amounts. If precipitation, gelation, or sedimentation occurs, do not use the combination of pesticides. Because of the wide variety of possible combinations that can be encountered, observe all precautions and limitations on the label of all products used in mixtures.

APPLICATION INSTRUCTIONS

Carbon Defense is a broad spectrum biopesticide for control of various fungal diseases and suppression of mites, aphids, whiteflies and other insects on vegetables, fruits, nuts, vine crops, field crops and ornamentals.

Carbon Defense is effective for strategic use in programs that attempt to minimize disease resistance to fungicides. Some other classes of fungicides, which are at risk from disease resistance, exhibit a single-site mode of fungicidal action. Carbon Defense, with a multi-site mode of action, may be used to delay or prevent the development of resistance to single-site fungicides. Base fungicide use on a comprehensive IPM program and monitor treated fungal populations for loss of field efficacy. Contact your local extension specialist, certified crop advisor and/or manufacturer for fungicide resistance management and/or IPM recommendations for specific crops and pathogen populations.

For disease control, apply on a preventative schedule beginning when environmental conditions are conducive to disease development. Repeat applications no sooner than every 7 days. When conditions are conducive for rapid disease development, use Carbon Defense in a rotational program with other registered fungicides.

If not applied on a routine protectant spray schedule, observe plants for disease signs or symptoms. Apply appropriate fungicide with a different mode of action at the listed label use rate and spray schedule, at the first sign of disease, report of disease in the area, or during environmental conditions favorable for disease development.

For mite and insect suppression, begin applications when pests first appear and repeat as necessary to maintain suppression, but no sooner than every 7 days. For best results, apply Carbon Defense before leaf hardening.

Rate of application is variable according to pest pressure, timing of sprays and plant stage of growth. Use lower rates under light to moderate pest pressure; higher rates under heavy pest pressure and for mite suppression. Arid climates generally require higher rates.

Do not apply when conditions favor drift from target area or wind speed is greater than 10 mph. Spray equipment must be cleaned thoroughly before and after applications.

Sprinkler Irrigation System Application: Apply this product only through drip, microjet, lateral move, end tow, side (wheel) roll, hand move, solid set and center pivot irrigation systems. Do not apply this product through any other type of irrigation system. Use standard tank agitation when mixing Carbon Defense alone or with other pesticides. Fill the tank halfway with water, begin agitation and add Carbon Defense, other tank mix pesticides or fertilizers and fill with water.

Preparation of Injection Equipment: Remove pesticide, scale residues and other foreign matter from the chemical tank and entire injection system. Flush with clean water.

Set the sprinkler system to deliver 0.1 to 0.3 inch of water per acre. Start the sprinkler system and uniformly inject the solution of Carbon Defense into the irrigation water line. Inject the Carbon Defense solution with a positive displacement pump into the main line before a right angle turn to ensure adequate mixing. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water. A person with knowledge of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut down and make necessary adjustments should the need arise. The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

When applying Carbon Defense using microjet and drip irrigation systems avoid further irrigation after the treatment has been completed for 24 to 48 hours.

When applying Carbon Defense using solid set, hand move and center pivot irrigation systems avoid further irrigation of the treated area until the foliage is dry to prevent washing the product from the crop.

When applying Carbon Defense using a continuously moving system, such as lateral move, or side (wheel) roll system, inject this product-water mixture continuously, applying the labeled rate per acre for that crop.

When applying Carbon Defense through stationary or non-continuous moving systems, inject the product-water mixture in the last 15-30 minutes of each set allowing sufficient time for all the required pesticide to be applied by all the sprinkler heads and applying the labeled rate per acre for that crop.

Apply Carbon Defense continuously for the duration of the water application.

GENERAL INFORMATION & INSTRUCTIONS FOR IRRIGATION SYSTEMS

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

Public 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.

Irrigation 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 physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow. The pesticide injection pipeline must contain a functional, automatic, quick closing check valve to prevent the flow of fluid back toward the injection pump. The pesticide injection pipeline must also contain a functional, normally closed, solenoid operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticides distribution is adversely affected. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock. For drip (trickle) irrigation: 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.

Do not apply when wind speed favors drift beyond the area intended for treatment.

For all crops, apply Carbon Defense at a rate of 1 to 6 quarts per acre. Apply on a preventative schedule for disease control. Begin applications when environmental conditions are conducive to disease development. Repeat applications no sooner than every 7 to 14 days. When conditions are conducive for rapid disease development, it is recommended that Carbon Defense be used in a rotational program with other registered fungicides. For mite and insect suppression, begin applications when pests first appear and repeat applications as necessary to maintain suppression, but no sooner than every 7 days. For best results, apply Carbon Defense before leaf hardening.

USE RATES FOR OUTDOOR & GREENHOUSE CROPS

For Fruit, Nut, Berry & Vine Crops: apply 1 to 6 quarts Carbon Defense in 50 to 250 gallons finished spray per acre. Specific Use Restrictions: Apply up to the day of harvest (0 day PHI). Do not apply more than 8 quarts per acre (2.5 lb ai/a) per application. Do not apply more than 16 gallons per acre (20 lb ai/a) per season. Do not make post harvest applications.

Berries & Vine Crops, including:

Blackberry	Gooseberry	Loganberry	Strawberry
Blueberry	Grape	Raspberry	

Citrus, including:

Grapefruit	Lime	Orange	Tangerine
Lemon	Mandarin	Pummelo	

Nut Crop, including:

Almond	Butternut	Chinquapin	Macadamia
Beech nut	Cashew	Filbert	Pecan
Brazil nut	Chestnut	Hickory	Walnut

Pome Fruit, including:

Apple	Loquat	Pear
Crabapple	Mayhaw	Quince

Stone Fruit, including:

Apricot	Nectarine	Plum
Cherry	Peach	Prune

USE RATES FOR OUTDOOR & GREENHOUSE CROPS CONTINUED

For Vegetable Crops, Cereal Grains, & Other Agronomic Crops: apply 1 to 4 quarts of Carbon Defense in a minimum of 20 gallons finished spray per acre. Specific Use Restrictions: Apply up to the day of harvest (0 day PHI). Do not apply more than 4 quarts per acre (1.25 lb ai/a) per application. Do not apply more than 7 gallons per acre (8.75 lb ai/a) per season. Do not make post harvest applications.

Cereal Grains, including:

Barley	Oats	Rye	Wild Rice
Corn	Popcorn	Sorghum	
Millet	Rice	Wheat	

Cucurbit & Fruiting Vegetables, including:

Cucumber	Muskmelon	Squash	
Eggplant	Pepper	Tomato	
Gherkin	Pumpkin	Watermelon	

Leafy & Brassica Vegetables, including:

Arugula	Celery	Kohlrabi	Rhubarb
Broccoli	Collards	Lettuce	Spinach
Brussels Sprouts	Endive	Mustard Greens	Swiss Chard
Cabbage	Fennel	Parsley	
Cauliflower	Kale	Radicchio	

Legume Vegetables, including:

Beans	Chickpea	Pea	
Broad Bean	Lentil	Soybean	

Root & Bulb Vegetables, including:

Garden Beet	Chervil	Leek	Salsify
Sugar Beet	Chicory	Onion	Shallot
Carrot	Garlic	Parsley Root	Sweet Potato
Cassava	Ginger	Potato	Turnip
Celeriac	Ginseng	Radish	Yam
Chayote	Horseradish	Rutabaga	

Other Agronomic Crops, including:

Artichoke	Grass	Jojoba	Sesame
Asparagus	(grown for seed)	Mint	Sunflower
Coffee	Hops	Papaya	Spearmint
Cotton	Industrial hemp	Pistachio	Tea

For Ornamental Crops (Including Broadleaf Shrubs & Trees, Flowering Plants & Bulbs, & Foliage Plants): apply 2 to 4 quarts Carbon Defense in 20 to 250 gallons finished spray per acre, making sure to get good coverage of the foliage. Specific Use Restrictions: Do not apply more than 4 quarts per acre (1.25 lb ai/a) per application. Do not apply more than 7 gallons per acre (8.75 lb ai/a) per season.

IMPORTANT NOTE: Plant sensitivities to Carbon Defense have been found to be acceptable for plants listed on this label; however it is impossible to know sensitivities under all conditions and phytotoxicity may occur. Due to the large number of species and varieties of ornamentals and nursery plants, it is impossible to test every one for sensitivity to Carbon Defense. Neither the manufacturer nor seller, endorses use upon species not listed on the label, nor has it been determined that Carbon Defense can be safely used on ornamental or nursery plants not listed on this label. The user must determine if Carbon Defense can be used safely prior to commercial use. In a small area, apply the listed rates to the plants in question, i.e. foliage, fruit, etc., and observe for 7-10 days for symptoms of phytotoxicity prior to commercial use. Do not apply foliar sprays to open blooms of Geranium, Marigold, Pansy, and Petunia.

Broadleaf Shrubs & Trees, including:

Andromeda	Eucalyptus	Holly	Rhododendron
Ash	Euonymus	Laurel	Sequoia
Aspen	Firethorn	Lilac	Spirea
Azalea	Flowering Almond	Magnolia	Sycamore
Buckeye	Flowering Cherry	Maple	Viburnum
Camellia	Flowering Peach	Oak	Walnut
Cherry Laurel	Flowering Plum	Poplar	
Crabapple	Flowering Quince	Privet	
Dogwood	Hawthorn	Red-Tip	

Flowering Plants & Bulbs, including:

African Violet	Daisy	Lily	Rose
Begonia	Geranium*	Maarigold*	Statice
Carnation	Gladiolus	Narcissus	Zinnia
Chrysanthemum	Hollyhock	Pansy*	
Crocus	Hydrangea	Petunia*	
Daffodil	Iris	Phlox	

*NOTE: Do not apply foliar sprays of Carbon Defense to open blooms of these species.

Foliage Plants, including:

Aglaonema	Fatsia	Oyster Plant	Philodendron
Artenesia	Ficus	Pachysandra	Prayer Plant
Boston Fern	Leatherleaf Fern	Palm	Ruffle Fern
Dracaena	Lipstick Plant	Parlor Palm	Syngonium
Dumbcane	Ming Aralias	Peperomia	Zebra Plant

STORAGE & DISPOSAL

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

Storage: Keep pesticide in original container. Keep container tightly closed when not in use. Store product above 40°F. Do not store in aluminum, fiberglass, copper, brass, zinc, or galvanized containers. Protect from excessive heat. Store in a cool, dry place.

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

Container Disposal: Non-refillable container. Do not reuse or refill this container. Triple rinse (or equivalent) promptly after emptying. For containers less than five gallons triple rinse as follows: Empty remaining contents into application equipment or mix tank and drain for 10 seconds after flow begins to drip. Fill container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or mix tank or store rinsate for later disposal. Drain for 10 seconds after flow begins to drip. Repeat this procedure two more times. For containers greater than five gallons triple rinse as follows: Empty remaining contents into application equipment or mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip the container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand container on its end and tip 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 mix tank or store rinsate for later use or disposal. Repeat the procedure two more times. Then offer for recycling or reconditioning, or puncture and or dispose of in a sanitary landfill, or incineration, or if allowed by state and local authorities by burning. If burned, stay out of smoke.

LIMITED WARRANTY & DISCLAIMER

The directions for use of this product are believed to be adequate and must be followed carefully. The use of this product is beyond the control of the manufacturer, and, therefore, to the extent consistent with applicable law, no warranty, representation, or guarantee of any kind, expressed or implied, is made as to the effects of such use or any results obtained if not used in accordance with printed directions and established safe practice or if unusual or extraordinary weather conditions occur. To the extent consistent with applicable law, the buyer's exclusive remedy and manufacturer's or seller's exclusive liability in tort or otherwise, shall be limited, at the manufacturer's option, to replacement of, or the repayment of the purchase price for, the quantity of product with respect to which damages are claimed.

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