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**Systems Integration Group, Inc.**

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(Container label first page only; insert label all pages)

# EthylBloc®

EthylBloc® is a powder that, when mixed with water or a buffer solution, releases a gas to extend the life and usefulness of many fresh cut flowers, potted flowers, bedding, nursery and foliage plants. Crops are treated with this gas in enclosed areas such as rooms, coolers, greenhouses, truck trailers and shipping boxes/containers. This product is intended for use only on ornamental, non-food crops. Do not use outdoors or in other non-enclosed areas.

**Active Ingredient:** 1-Methylcyclopropene..... 0.43%  
**Other Ingredients:**..... 99.57%  
**Total:** ..... 100.00%

**KEEP OUT OF REACH OF CHILDREN  
CAUTION**

### Statement of Practical Treatment

**IF IN EYES:** Flush with plenty of water. Call a physician if irritation persists.  
**IF ON SKIN:** Wash with plenty of soap and water. Get medical attention.  
**IF INHALED:** Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

Refer to insert label for additional Precautionary Statements and Directions for use.

Manufactured by: Biotechnologies for Horticulture, Inc.  
 751 Thunderbolt Road  
 Walterboro, SC 29488

For product information call toll-free (800) 323-3689

EPA Registration No.: 71297-R  
 EPA Establishment No.: 32258-IL-1  
 U.S. Patent No. 5,518,988

Net Contents: 25, 50, 100 or 200 grams

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## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION.** Causes moderate eye irritation. Harmful if absorbed through skin. Avoid contact with eyes, skin or clothing. Avoid breathing vapor. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and mixers of this product must wear:

- Long-sleeved shirt and long pants.
- Shoes plus socks.
- Protective eyewear (goggles or face shield).
- Rubber gloves.
- For activities in enclosed areas, wear a respirator with either an organic vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C) or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G).
- Applicators and handlers must 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 wash hands thoroughly with soap and water before eating, drinking, chewing gum, using tobacco or using the toilet. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

## DIRECTIONS FOR USE

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

### AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), notification to workers, and restricted-entry interval (REI). The requirements in this box only apply to the 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: long-sleeved shirt, long pants, shoes plus socks, and a respirator with either an organic vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C) or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G).

For all applications, notify workers of the application by warning them orally and by posting warning signs outside all entrances to the treated area. Treated areas should be vented with outside air before reentry.

**STORAGE AND DISPOSAL** Do not contaminate water, food or feed by storage or disposal.

**Pesticide Storage:** Store in original packaging 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:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, 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.

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**Directions for Use:**

EthylBloc® is a powder that, when added to a Buffer Solution or water, releases a patented gas (*1-Methylcyclopropene, MCP*). When used properly, EthylBloc® can extend the life and usefulness of many fresh cut flowers and potted flowers, bedding, nursery and foliage plants. EthylBloc® works by inhibiting the negative effects of ethylene and thus prevents or reduces premature flower death, leaf and/or flower fall, and leaf yellowing.

EthylBloc® is specifically designed to be used by all levels of the floral and nursery industries, including growers, shippers, wholesalers, bouquet manufacturers, mail order houses and retailers (such as florists, garden centers, nurseries and mass market outlets). EthylBloc® is also very easy to use with almost no labor costs.

Some of the many flowers and plants that can benefit from EthylBloc® treatment include:

Achillea, Aconitum, Agapanthus, Alchemilla, Allium, Alstroemeria, Alyssum, Aphelandra, Aquilegia, Asclepias, Astrantia, Asparagus Fern, Azalea, Begonia, Bouvardia, Brassia (*Schefflera*), Brodiaea (*Triteleia*), Calathea, Campanula, Carnation, Celosia, Centaurea, Chamaedorea, Chelone, Coleus, Cordyline, Cymbidium, Crocosmia (*Montbretia*), Daucus (Queen Annes Lace), Delphinium, Dendrobium, Dianthus, Dicentra, Dizygotheca, Doronicum, Echium, Eremurus, Eustoma (*Lisianthus*), Ficus, Freesia, Fuchsia, Geranium, Gladiolus, Godetia, Gypsophila, Hibiscus, Ilex (Holly), Impatiens, Ixia, Kalanchoe, Kniphofia, Lavatera, Lily, Lysimachia, Miniature Carnation, Monkshood, Pelargonium, Petunia, Philodendron, Phlox, Physostegia, Poinsettia, Radermachera, Rose, Rudbeckia, Salvia, Saponaria, Scabiosa, Silene, Snapdragon, Solidaster, Stock, Streptocarpus, Sweet William, Trachelium, Trollius, Veronica, Wax Flower, and Zygocactus.

Plants must be exposed to this gas in enclosed areas such as greenhouses, rooms, coolers, shipping boxes or trailers. These enclosed areas should be fairly gas tight as excessive leakage will reduce EthylBloc® effectiveness. This product is not intended for use outdoors or in other non-enclosed areas.

EthylBloc® is more effective when plants are exposed to this gas for at least four hours under warm temperature conditions (55° to 75° F, 13° to 24° C). Higher dosages and longer treatment times are required for plants held under lower temperatures (below 55° F, 13° C).

EthylBloc® can be used just prior to harvest, immediately after harvest, just prior to shipment, upon arrival from the supplier, and/or just prior to sale. To realize maximum benefits, all of the crops listed above should be treated whether or not they may have been previously treated with EthylBloc® or another anti-ethylene product at an earlier point in the distribution chain. Shipments that you know have already been treated with

EthylBloc® do not have to be retreated. However, as noted above, retreating is not harmful and can even be beneficial. Examples of some species that would likely benefit from additional applications include those with more than one flower per stem (i.e. snapdragons, delphiniums, miniature carnations and alstroemeria) and flowers at different stages of development on the same plant (i.e. geraniums, impatiens, and azaleas).

EthylBloc® comes with a scoop for easy measurement along with the proper Buffer (mixing) Solution. The Buffer Solution is used to facilitate MCP gas release from the white powdered carrier. It contains 0.75% potassium hydroxide and 0.75% sodium hydroxide in water. Users can substitute tap water for the Buffer Solution but the release of MCP gas will not be as efficient. Contact the manufacturer for specific directions if water is used instead of Buffer Solution. Refer to the information presented below for selecting the right number of EthylBloc® scoops and Buffer Solution volume for your application.

**Posting:** Signs should be posted on all points of potential entry into treated areas during treatment with EthylBloc® (for at least four hours or as otherwise recommended in the Directions for Use). Signs should state "CAUTION. Do not enter area. EthylBloc® treatment underway." Posting is suggested as a means of ensuring optimal effectiveness of EthylBloc®.

**APPLICATION IN GREENHOUSES PRIOR TO HARVEST**

Fresh cut flowers and bedding, and potted flowering, nursery and foliage plants can be treated in the greenhouse just prior to being harvested.

**To treat with EthylBloc®:**

1. The greenhouse must be tightly constructed. Plastic covered houses (especially "double-poly") are generally tighter than fiberglass or glass covered ones.
2. Sections of greenhouses can be enclosed with plastic to make the treatment area smaller as long as it is sealed properly to prevent the gas from escaping.
3. Make sure all greenhouse vents are closed. Night treatment is recommended mainly because vent closing is more realistic and treatment times can be longer.
4. Any internal air circulation system (that does not bring in outside air) should remain on during treatment to help distribute the gas.
5. The amount of EthylBloc® required depends on the volume of the greenhouse, treatment temperature and treatment time.

6. To determine the approximate greenhouse volume, multiply the greenhouse width x length x ½ of the height measured at the ridge/peak. For example, if a greenhouse is 25 feet wide x 100 feet long x 10 feet high, the approximate volume equals 25 x 100 x 10/2 = 12,500 cubic feet.
7. The above-described calculations can also be performed using meters as dosages are presented both in per cubic foot and per cubic meter.
8. All greenhouse treatments should be done at temperatures greater than 55° F (13° C).
9. For treatment times from four to eight hours, the correct EthylBloc® dosage is one level scoop per 100 cubic feet or one level scoop per 3.0 cubic meters. **Note:** One level scoop equals about 1.5 grams.
10. For treatment times from 12 to 16 hours, the correct EthylBloc® dosage is reduced to one level scoop per 200 cubic feet or one level scoop per 6.0 cubic meters.
11. The correct amount of Buffer Solution to use is one ounce (about 30 ml) per level scoop of EthylBloc®.
12. The mixing container should be made out of plastic and be large enough to hold the EthylBloc® and Buffer Solution. A plastic pail works well for larger applications while a plastic bowl or similar container for smaller applications.
13. Please refer to **Tables One, Two and Three** for examples of recommended EthylBloc® dosages based on room size, treatment temperature and treatment time.
14. To mix:
  - a. Wear all Personal Protective Equipment (PPE) required under Precautionary Statements.
  - b. First add the proper amount of EthylBloc® to the mixing container.
  - c. Then add the proper amount of Buffer Solution, making sure that all of the EthylBloc® powder is covered.
  - d. Briefly stir the mixture for about 5 to 10 seconds and then leave the treatment area immediately, making sure the area is properly sealed behind you.
15. Remaining mixing solution (which no longer contains MCP) can be disposed of on site or at an approved waste disposal facility.

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## APPLICATION IN HOLDING/STORAGE ROOMS, COOLERS, TRUCK TRAILERS AND OTHER ENCLOSED AREAS

Non-boxed crops being held in enclosed areas can be easily treated with EthylBloc®. For example, sleeved potted plants and cut flowers (held dry or in solution) that are not boxed can be treated. Boxed plants and cut flowers with the lids and/or precooling vents completely open can also be treated as long as the box openings are directly exposed to the surrounding atmosphere and thus the EthylBloc® gas. Bedding or potted plants on movable racks are easily treated.

Examples of typical areas that could be used for treating crops with EthylBloc® include:

- Retail florist coolers including walk-in, storage and/or walk-in/storage combinations;
- Wholesale florist coolers;
- Delivery trucks or vans, regardless of their size/volume;
- Truck trailers;
- Inter-modal containers;
- Any room in a building that can be isolated, sealed and aerated/vented to the outside after treatment;
- Boxed crops if the boxes were enclosed in plastic such as being shrink-wrapped.

**Note:** Some of the treatment area examples presented above may require plastic liners, tape and/or other products and procedures to make them more gas tight.

### ***To treat with EthylBloc®:***

1. Measure the size of the room/cooler/trailer (length, width and height) in feet or meters.
2. Multiply these three numbers together to obtain the volume of the room in cubic feet or cubic meters.



3. Refer to **Tables One and Two** for the EthylBloc® rates if the treatment room and products are 55° F (13° C) or higher.
4. If the treatment and/or product temperature is below 55° F (13° C), the correct EthylBloc® dosage is three level scoops per 100 cubic feet and three level scoops per 3.0 cubic meters (see **Table Three**).
5. The mixing container should be made out of plastic and be large enough to hold the EthylBloc® and Buffer Solution. A plastic pail works well for larger applications while a plastic bowl or similar container for smaller applications.
6. Please refer to **Table One, Two and Three** for examples of the recommended rates based on treatment temperatures and time.
7. To mix:
  - a. Wear all Personal Protective Equipment (PPE) required under Precautionary Statements.
  - b. First add the proper amount of EthylBloc® to the mixing container;
  - c. Then add the proper amount of Buffer Solution, making sure that all of the EthylBloc® powder is covered;
  - d. Briefly stir the mixture for about 5 to 10 seconds and then leave the treatment area immediately, making sure the area is properly sealed behind you.
8. Remaining mixing solution (which no longer contains MCP) can be disposed of on site or at an approved waste disposal facility.

**APPLICATION IN AREAS SPECIFICALLY BUILT FOR ETHYLBLOC®  
TREATMENT**

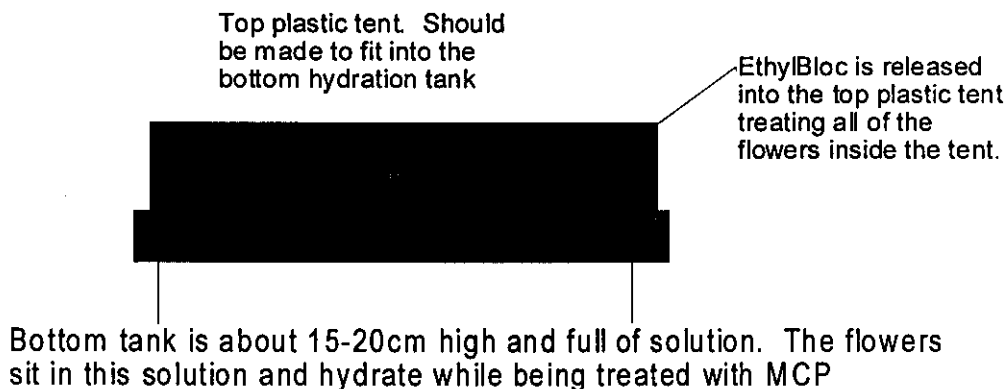
**General EthylBloc® Treatment Chamber.** It might be appropriate to construct an area to be used solely for EthylBloc® treatment. By doing so one can maximize the EthylBloc® effectiveness and reduce costs by requiring less EthylBloc® to treat a given number of plant units.

While this treatment area could be built using a number of gas impermeable materials, 4.0 to 6.0 mil polyethylene should work well. Just make sure the unit is sealed properly.

One way to help ensure a good seal where the plastic comes in contact with the floor is to use water. Namely, the base (plastic) of the treatment unit is submerged in a trough of water a few inches deep thus making a good seal where gas cannot escape.

To use such a treatment area, follow the same directions presented above for greenhouses and other enclosed areas making sure you adjust the rates based on crop and room temperatures. Constructing such specific EthylBloc® treatment areas has proven to be an effective way of using EthylBloc®.

**Cut Flower Hydration EthylBloc® Treatment Chamber.** The top of the chamber can be made of 4.0 to 6.0 mil polyethylene and a wooden frame, a single plastic piece that can fit into the bottom hydration tank, or something similar. The bottom tank can be any size tub that is capable of holding solutions. See drawing below.



Place the flowers into the bottom tank in bunches or buckets. Place the top plastic tent over the bottom holding tank. The tent's bottom edges must be able to be submerged into the solution to the bottom of the tank to insure a seal. Lift an end of the tent up and place the bowl or bucket containing EthylBloc® powder into the chamber. Place the Buffer Solution into the bowl or bucket, totally covering the powder. The contents in the bowl/bucket must remain separate from the solution in the tank throughout the treatment. Immediately seal the tent by submerging the walls of the tent in the solution to the bottom of the tank. Follow EthylBloc® use directions already presented.

**Table One:** EthylBloc® and Buffer Solution rates based on treatment temperatures being at least 55° F (13° C) and treatment time be a minimum of four and up to eight hours in various room sizes. Rates not given can be calculated by combining treatment room sizes.

TREATMENT ROOM SIZE		ETHYLBLOC® Rate: 900ppb		BUFFER SOLUTION	
cubic feet	cubic meters	scoops	Grams	ounces	milliliters
100	3	1	1.5	1	30
500	15	5	7.5	5	150
1000	30	10	15.0	10	300
2500	75	25	37.5	25	750
5000	150	50	75.0	50	1500
10000	300	100	150.0	100	3000

**Note:** A minimum four-hour exposure is required. Overnight exposure (eight hours) is even better.

**Table Two:** EthylBloc® and Buffer Solution rates based on treatment temperatures being at least 55° F (13° C) and treatment time be a minimum of 12 to 16 hours in various room sizes. Rates not given can be calculated by combining treatment room sizes.

TREATMENT ROOM SIZE		ETHYLBLOC® Rate: 450ppb		BUFFER SOLUTION	
cubic feet	cubic meters	scoops	grams	ounces	milliliters
200	6	1	1.5	1	30
1000	30	5	7.5	5	150
2000	60	10	15.0	10	300
5000	150	25	37.5	25	750
10000	300	50	75.0	50	1500
20000	600	100	150.0	100	3000

**Note:** A minimum 12 to 16-hour exposure is required.

**Table Three:** EthylBloc® and Buffer Solution rates based on treatment temperatures being between 35° and 55° F (3° and 13° C) and treatment time be a minimum of 10 hours in various room sizes. Rates not given can be calculated by combining treatment room sizes.

TREATMENT ROOM SIZE		ETHYLBLOC® Rate: 900 ppb		BUFFER SOLUTION	
cubic feet	cubic meters	scoops	grams	ounces	milliliters
100	3	1.0	1.5	1.5	45
500	15	7.5	11.3	7.5	225
1000	30	15.0	22.5	15.0	450
2500	75	30	45	37.5	1125
5000	150	60	90	75.0	2250
10000	300	120	180	150.0	4500

**Note:** a minimum 10 hour exposure period is required for plants and flowers being held at 55° F (13° C) or lower. Longer exposures are even better.

**WARRANTY** Biotechnologies for Horticulture Inc. warrants that this material conforms to the chemical description on the label. Biotechnologies for Horticulture Inc. neither makes nor authorizes any agent or representative to make any other warranty of fitness or of merchantability, guarantee or representation, express or implied, concerning this material. The maximum liability for breach of this warranty shall not exceed the purchase price of this product. Biotechnologies for Horticulture Inc.'s maximum liability for breach of this warranty shall not exceed the purchase price of the product. Buyer and user acknowledge and assume all risks and liabilities resulting from the handling, storage and use of this material, whether or not in accordance with directions.

**Questions? Contact Biotechnologies for Horticulture toll-free at (800) 538-3320 or call (843) 538-3839**