



U.S. ENVIRONMENTAL PROTECTION AGENCY  
Office of Pesticide Programs  
Registration Division (7505C)  
401 "M" St., S.W.  
Washington, D.C. 20460

EPA Reg. Number:

68223-1

Date of Issuance:

Term of Issuance:  
Conditional

Name of Pesticide Product:  
ETHYLENE COMPRESSED  
PLANT GROWTH  
REGULATOR

NOTICE OF PESTICIDE:  
XXX Registration  
Reregistration

(under FIFRA, as amended)

Name and Address of Registrant (include ZIP Code):

GEORGE W. FOWLER COMPANY  
2800 S.E. MARKET PLACE  
STUART, FL 34997

**BEST AVAILABLE COPY**

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA sec. 3(c)(7)(A) provided that you:

1. Submit/cite all data required for registration/reregistration of your product under FIFRA section 3(c)(5) or 4(a) when the Agency requires all registrants of similar products to submit such data.

2. Make the labeling changes listed below before you release the product for shipment:

a. Add the phrase "EPA Registration No. 68223-1

b. Caption the Ingredient statement with the words, **INGREDIENT STATEMENT**, and delete the colon after the words, "ACTIVE INGREDIENT" on the front panel. The paragraph, "Do not apply this product in a way that will contact workers or other persons either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation" under **DIRECTIONS FOR USE**, must be relocated within the **AGRICULTURAL USE REQUIREMENTS** box.

Signature of Approving Official:

*[Handwritten signature]*

Date:

*[Handwritten date: 10/6/94]*

28"

3. Submit two copies of the revised final printed label prior to the release of your product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

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

Sincerely,

Cynthia Giles-Parker  
Product Manager (22)  
Fungicide-Herbicide Branch  
Registration Division (7505C)

) Enclosure

ETHYLENE,  
COMPRESSED  
UN 1962



ETHYLENE AGRICULTURAL GRADE

ACTIVE INGREDIENT  
ETHYLENE.....100%

COAS 338 BEFORE USING PRODUCT, READ side label

proposed neck label

**BEST AVAILABLE COPY**

**BEST AVAILABLE COPY**

4011  
3

PLANT GROWTH REGULATOR AND HERBICIDE  
ETHYLENE COMPRESSED  
UN 1962

ACTIVE INGREDIENT:  
ETHYLENE.....100%

NET CONTENTS: 30#/60#

KEEP OUT OF REACH OF CHILDREN  
DANGER

Statements of Practical Treatment

IF INHALED: Remove victim to fresh air. If not breathing, Give artificial respiration, preferably mouth to mouth. Get medical attention.

IF ON SKIN: wash with plenty of soap and water. Get medical attention.

IF IN EYES: Flush with plenty of water. Get medical attention.

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

IN CASE OF EMERGENCY CALL INFOTRAC: 1-800-535-5035

EPA REG. NO. 68223

EPA EST. NO. 68223-FL.-001

George W. Sawyer Co.  
Stuart, FL. 34927

PROPOSED LABEL, CENTER PANEL

ACCEPTED  
DATE: \_\_\_\_\_  
Dated:

68223-1

BEST AVAILABLE COPY

**Precautionary Statement  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
DANGER**

Liquefied or pressurized gas can cause frost burns. Do not get in eyes or on skin. Wear long-sleeved shirt, long pants, boots, goggles and chemical-resistant gloves while handling cylinders or any application equipment under pressure. Harmful if inhaled. Avoid breathing vapors. Do not enter unventilated treatment areas unless wearing a respirator approved by NIOSH/MSHA for this use.

**ENVIRONMENTAL HAZARDS**

Do not apply directly to water, or areas to where surface water is present or to interstitial areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water or sludge.

**PHYSICAL OR CHEMICAL HAZARDS**

Extremely flammable. Contents under pressure. Keep away from fire, sparks and heated surfaces. Do not puncture or incinerate container. Exposure to temperatures above 130 degrees Fahrenheit may cause bursting.

**STORAGE AND DISPOSAL**

**STORAGE:** Store and use with adequate ventilation at all times. Close valve when not in use or when empty.  
**DISPOSAL:** Return all unused product and empty cylinders to supplier for disposal.

**DIRECTIONS FOR USE**

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

**TO BE USED ONLY BY PERSONS EXPERIENCED IN FRUIT RIPENING AND/OR WITCHAMER CONTROL OR UNDER THE SUPERVISION OF EXPERIENCED PERSONAL.** Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state, or tribe consult the agency responsible for pesticide regulation.

**AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and the worker protection standard, 40 C.F.R. §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, documentation, notification to workers, and restricted entry intervals. The requirements in this box only apply to uses of this product that are covered by the worker protection standard.

Only for the formulation into a product for growth regulation for the following uses: (1) fruit ripening as described on this label; (2) uses for which the EPA has accepted the required data and/or citations of data that the formulator has submitted in support of registration, and (3) uses for experimental purposes that are in compliance with EPA requirements.

**Personal Protective Equipment (PPE)**

Applicators and other handlers must wear long-sleeved shirt and long pants, shoes and socks, chemical-resistant gloves, face sealing goggles when handling cylinders or any application equipment under pressure.

**Use Safety Recommendations:**

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

**Entry Restrictions:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI): 12 hours.

**General Precautions: DANGER: EXTREMELY FLAMMABLE**

(1) Do not use open flame heaters, exposed element electrical heaters or any spark producing electrical equipment, such as electric motors with exposed brushes. Use fans with an induction type or sealed-in motor.

(2) Post "DANGER EXTREMELY FLAMMABLE" and "NO SMOKING" signs inside the sweating room, on the outside of all doors, and in the vicinity of the cylinders and measuring apparatus.

(3) Cylinders should be stored in a well ventilated area. When discharged from a cylinder in a confined space, ethylene gas replaces the air and may be harmful. Do not breathe vapors. Asphyxiant.

(4) Use only metal connections and piping capable of withstanding 2,000 pounds per square inch.

(5) Cylinders must be secured in an upright position when discharging, and must be grounded before discharging in order to avoid static sparks.

(6) Cylinder valve outlet connections, i.e., 1/2" left handed threads, use regulator especially made for ethylene gas.

6811

**AMOUNT OF GAS REQUIRED:**  
Each application of ethylene should consist of not more than one cubic foot of ethylene to 1,000 cubic feet of room space. Use of an additional quantity of ethylene will not speed up the coloring process. An excess quantity of ethylene may result in an accumulation of a flammable and explosive air gas mixture which should be avoided before starting the treatment. It is necessary to determine the cubic content of the room by multiplying the length by the width by the height. No allowance is made for the space occupied by the fruit. For instance, a room 20 feet long, 15 feet wide and 10 feet high contains 3,000 cubic feet and requires a maximum of three cubic feet of ethylene per treatment.

**THE PROPER TEMPERATURE:**  
Keep the temperature between 65° F. and 90° F. depending on the type and condition of the fruit. If the room becomes cooler than the 65° F. the coloring process will slow. At temperatures above 90° F. bacterial growth and rotting may be accelerated when the room must be heated. Hot water or steam pipes is the most suitable. NEVER USE AN OPEN FLAME. The heating may be done with a gas or electric heater which has been examined and LISTED FOR THIS APPLICATION by Underwriters Laboratories, Inc. No other heater should be used in the room.

**VENTILATION:**  
Ventilate the room before each application of ethylene, particularly if the room is well sealed. Fruits, breath and like human beings need plenty of oxygen. The air can be changed by opening the door and windows for about half an hour before each treatment. In specially constructed or large sweating rooms, a ventilating fan should be provided. A fan is also useful for circulating the air and ethylene mixture. BUT ONLY IN SPECIALLY BUILT AIRTIGHT ROOMS. It assists the ethylene to penetrate closely packed fruits and reduces coloring time. In loosely constructed rooms the fan would quickly drive out the ethylene and should never be used.

All electrical equipment, including lights, fan motors, switches, etc., should comply with National Electric Code for class 1, group B equipment and installations. Ethylene is introduced into the room in accurately measured quantities at regular intervals of time. The gas should be conducted from the cylinder through a flowmeter calibrated for measuring flow in cubic feet per minute of ethylene gas. The gas then flows to the treating room through metal pipes or tubing.

The regulator should be operated as follows:  
(1) Connect the regulator to the cylinder valve. (Note the threads on the valve are left handed.) See that the union nut is drawn up tight to prevent any leak at this point. Soapy water applied to this joint will indicate leaks by expanding bubbles. NEVER USE A MATCH OR OPEN FLAME TO CHECK FOR FLAMMABLE GAS LEAKS.  
(2) Attach a flexible metal hose from the outlet connection of the regulator to the piping which leads to the building or vault containing the fruit. THIS LINE IN PIPE MUST BE GROUNDED.

(3) See that the handwheel on the regulator is backed out by turning it to the left so that it is loose. Open the valve at the top of the cylinder SLOWLY by turning it to the left all the way.  
(4) Assume the sweating room is 20 feet long, 15 feet wide, and 10 feet high, or 3,000 cu. ft. in volume. This would usually require

approximately three (3) cu. ft. of ethylene. Turn the gas flow by holding a watch in one hand and turn the adjusting screw clockwise until the needle starts to waver. Start the timing from this point and continue to turn the pressure adjusting screw in until the pointer shows 1 1/2 cu. ft. of ethylene is flowing from the cylinder each minute. (Note: The ethylene to flow for six (6) minutes (six minutes  $\times$  1 1/2 cu. ft. per minute equals three cu. ft.) and then reverse the pressure adjusting screw on regulator counterclockwise until it is loose. THEN CLOSE THE CYLINDER VALVE TIGHTLY.

(5) Detach the hose from the regulator so that it becomes impossible for any more ethylene to get into the ripening room. A low rate of flow, rather than a high rate is desirable as the longer time required will assure greater accuracy in measuring the gas. The following rates of flow are recommended:

FOR ROOMS UP TO 3,000 CU. FT. IN VOLUME: 1 1/2 CU. FT. PER MIN.  
FOR ROOMS BETWEEN 3,000 AND 10,000 CU. FT.: 1 CU. FT. PER MIN.  
FOR ROOMS OVER 10,000 CU. FT.: 2 TO 2 1/2 CU. FT. PER MIN.  
THOROUGH VENTILATION ESSENTIAL. It is customary to treat the fruits twice each day usually in the morning and at night. In many cases, better results are obtained from four treatments per day at 4 hour intervals.

**FRUIT RIPENING**

**RECOMMENDED DOSEAGE:** to be used in air in a tightly enclosed treatment room. Do not degreen until time to ready the fruit for market.

| FRUIT      | PPM        | TEMP.        | RH  | USE   | TIME OF EXPOSURE                    |
|------------|------------|--------------|-----|---|-------------------------------------|
| Bananas    | 1,000      | 65 to 70° F. | 90% | To initiate degreening & ripening   | 3 to 4 days                         |
| Citrus     | 5          |              | 90% | To initiate degreening  | 1-1/2 to 3 days                     |
| Grapefruit |            | 80 to 90° F. |     |   |                                     |
| Oranges    |            | 80 to 90° F. |     | Use adequate ventilation before each application                                      | Apply 2x/day                        |
| Tangerines |            | 70° F.       |     |   |                                     |
| Lemon      | 1,000      | 70° F.       | 90% | To initiate degreening  | 1 to 4 days                         |
| Melons     | 1,000      | 65° F.       |     | To initiate degreening  | 4 to 6 days                         |
| Honeydew   |            |              |     |   |                                     |
| Pears      | 1,000      | 65° F.       |     | To initiate degreening & ripening use adequate ventill. allou before each application | Apply 2x/day                        |
| Pearl      |            |              |     |   |                                     |
| Peach      |            |              |     |   |                                     |
| Apple      |            |              |     |   |                                     |
| Papaya     | 1,000      | 65° F.       | 90% | To initiate degreening to remove ethylene jelly and to soften                         | 3 days                              |
| Pineapples | 1,000      | 70° F.       | 90% | To initiate degreening  | 1 to 4 days                         |
| Tomatoes   | 100 to 150 | 65 to 70° F. | 90% | To initiate degreening & ripening   | 4 days<br>Apply 2x/day              |
| Walnuts    | 1,000      | 70 to 80° F. | 90% | To loosen hulls thoroughly  | 2 1/2 to 3 1/2 days<br>Apply 2x/day |

**BEST AVAILABLE COPY**

Precautionary Statements  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
DANGER

Liquefied or pressurized gas can cause frost burns. Do not get in eyes or on skin. Wear long-sleeved shirt, long pants, boots, goggles and chemical-resistant gloves while handling cylinders or any application equipment under pressure. Harmful if inhaled. Avoid breathing vapors. Do not enter unventilated treatment areas unless wearing a respirator approved by NIOSH/MSHA for this use.

ENVIRONMENTAL HAZARDS

Do not apply directly to water, or areas to where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water or rinsate.

PHYSICAL OR CHEMICAL HAZARDS

Extremely flammable. Contents under pressure. Keep away from fire, sparks and heated surfaces. Do not puncture or incinerate container. Exposure to temperatures above 130 degrees fahrenheit may cause bursting.

STORAGE AND DISPOSAL

STORAGE: Store and use with adequate ventilation at all times. Close valve when not in use or when empty.  
DISPOSAL: Return all unused product and empty cylinders to supplier for disposal.

DIRECTIONS FOR USE

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

TO BE USED ONLY BY PERSONS EXPERIENCED IN FRUIT RIPENING AND/OR WITCHWEED CONTROL OR UNDER THE SUPERVISION OF EXPERIENCED PERSONAL. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and the worker protection standard, 29 C.F.R. 1910. 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

Left Panel

**BEST AVAILABLE COPY**

training, documentation, notification to workers, and restricted entry intervals. The requirements in this box only apply to uses of this product that are covered by the worker protection standard.

Only for the formulation into a product for growth regulation for the following uses: (1) fruit ripening as described on this label. (2) uses for which US EPA has accepted the required data and/or citations of data that the formulator has submitted in support of registration and (3) uses for experimental purposes that are in compliance with US EPA requirements.

**Personal Protective Equipment (PPE)**

Applicators and other handlers must wear: Long-sleeved shirt and long pants, shoes and socks, waterproof gloves, face-sealing goggles when handling cylinder or any application equipment under pressure.

**User Safety Recommendations:**

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

**Entry Restrictions:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

**General Precautions: DANGER: EXTREMELY FLAMMABLE**

- (1) Do not use open flame heaters, exposed element electrical heaters or any spark producing electrical equipment, such as electric motors with exposed brushes. Use fans with an induction type or sealed-in motor.
- (2) Post "DANGER EXTREMELY FLAMMABLE" and "NO SMOKING" signs inside the sweating room, on the outside of all doors, and in the vicinity of the cylinders and measuring apparatus.
- (3) Cylinders should be stored in a well ventilated area. When discharged from a cylinder in a confined space, ethylene gas replaces the air and may be harmful. Do not breathe vapors. Asphyxiant.
- (4) Use only metal connections and piping capable of withstanding 2,000 pounds per square inch.
- (5) Cylinders must be secured in an upright position when discharging, and must be grounded before discharging in order to avoid static sparks.
- (6) Cylinder valve outlet connections is cga 350 (left handed thread). Use regulator especially made for ethylene gas.

**EXTREMELY FLAMMABLE  
DANGER**

**AMOUNT OF GAS NEEDED:**

Each application of ethylene gas requires a certain amount of gas. The amount of ethylene to flood cubic feet of space. Use of an additional quantity of ethylene will not speed up the ripening

PREF 13MAY 1987

Right Panel START

**BEST AVAILABLE COPY**



process. An excess quantity of ethylene may result in an accumulation of a flammable and explosive air-gas mixture which should be avoided. Before starting the treatment, it is necessary to determine the cubic content of the room by multiplying the length by the width by the height. No allowance is made for the space occupied by the fruit. For instance, a room 20 feet long, 15 feet wide and 10 feet high contains 3,000 cubic feet and requires a maximum of three cubic feet of ethylene per treatment.

**THE PROPER TEMPERATURE:**

Keep the temperature between 65°F and 90°F depending on the type and condition of the fruit. If the room becomes cooler than the 65°F the coloring process is slow. At temperatures above 90°F bacterial growth and rotting may be accelerated. When the room must be heated, a hot water or steam pipe is the most suitable. **NEVER USE AN OPEN FLAME.** The heating may be done with a gas or electric heater which has been examined and **LISTED FOR THIS APPLICATION** by Underwriters Laboratories, inc. No other heater should be used in the room.

**APPLICATION**

Ventilate the room before each application of ethylene, particularly if the room is well sealed. Fruits "breathe" and like human beings need plenty of oxygen. The air can be changed by opening the doors and windows for about half an hour before each treatment is made. In specially constructed or large sweating rooms, a ventilating fan should be provided. A fan is also useful for circulating the air and ethylene mixture. **BUT ONLY IN SPECIALLY BUILT AIRTIGHT ROOMS.** It assists the ethylene to penetrate closely packed fruits and reduces coloring time. In loosely constructed rooms the fan would quickly drive out the ethylene and should never be used.

All electrical equipment, including lights, fan motors, switches, etc. should comply with National Electric Code for class 1, group 0 equipment and installations. Ethylene is introduced into the room in accurately measured quantities at regular intervals of time. The gas should be conducted from the cylinder through a flowmeter calibrated for measuring flow in cubic feet per minute of ethylene gas. The gas then flows to the treating room through metal pipes or tubing.

The regulator should be operated as follows:

- (1) Connect the regulator to the cylinder valve. (note the threads on the valve are left-handed) See that the union nut is drawn up tight, to prevent any leak at this point. Soapy water applied to this joint will indicate leaks by expanding bubbles. **NEVER USE A MATCH OR OPEN FLAME TO CHECK FOR FLAMMABLE GAS LEAKS.**
- (2) Attach a flexible metal hose from the outlet connection of the regulator to the piping which leads to the building or vault containing the fruit. **THIS LEAD IN PIPE MUST BE GROUNDED.**
- (3) See that the needlewheel on the regulator is backed out by turning it to the left so that it is loose. Open the valve at the top of the cylinder **SLOWLY** by turning it to the right all the way.
- (4) Assume the sweating room is 20 feet long, 15 feet wide, and 10 feet high, or 3,000 cu. ft. in volume. This would usually require

*Right Power*

approximately three(3) cu.ft. of ethylene. Time the gas flow by holding a watch in one hand and turn the adjusting screw clockwise until the needle starts to move. Start the timing from this point, and continue to turn the pressure adjusting screw in until the pointer shows 1/2 cu.ft. of ethylene is flowing from the cylinder each minute. Allow the ethylene to flow for six(6) minutes (six min. times 1/2 cu.ft. per minute equals three cu.ft.) and then reverse the pressure adjusting screw on regulator counterclockwise until it is loose. **THEN CLOSE THE CYLINDER VALVE TIGHTLY.**

(5) Detach the hose from the regulator so that it becomes impossible for any more ethylene to get into the ripening room. A low rate of flow, rather than a high rate is desirable as the longer time required will assure greater accuracy in measuring the gas. The following rates of flow are recommended:

- For rooms up to 5,000 cu.ft. in volume: 1/2 cu.ft. per min.
- For rooms between 5,000 and 10,000 cu.ft.: 1 cu.ft. per min.
- For rooms over 10,000 cu.ft.: 2 to 2-1/2 cu.ft. per min.

**THOROUGH VENTILATION ESSENTIAL.** It is customary to treat the fruits twice each day. Usually in the morning and at night. In many cases, better results are obtained from four treatments per day at 6-hour intervals.

**FRUIT RIPENING**

**RECOMMENDED DOSAGE:** To be used in air in a tightly enclosed treatment room. Do not degreen until time to ready the fruit for market.

| Mature Fruit | PPM   | TEMP.       | RH. | USE  | Time Of EXPOSURE |
|--------------|-------|-------------|-----|--|------------------|
| Bananas      | 1,000 | 65 to 70°F. | 90% | To initiate degreening & ripening  | 3 to 4 days      |
| Citrus       | 5     |             | 90% | To initiate degreening   | 3-1/2 to 5 days  |
| Grapefruit   |       | 80 to 90°F  |     |  |                  |
| Oranges      |       | 80 to 90°F  |     | Use adequate ventilation before each application                                   | Apply 2x/day     |
| Tangerines   |       | 70°F        |     |  |                  |
| Lemon        | 1     | 70°F        | 80% |  |                  |
| Melons       | 1,000 | 65°F        |     | To initiate degreening   | 3 to 4 days      |
| Honeydew     |       |             |     |  |                  |
| Pears        | 1,000 | 65°F        |     | To initiate degreening & ripening use adequate ventilation before each application | 4 to 8 days      |
| Bartlett     |       |             |     |  |                  |
| Bosc         |       |             |     |  |                  |

*RIGHT PAGE*

**BEST AVAILABLE COPY**

|            |            |            |        |   |                                  |
|------------|------------|------------|--------|---|----------------------------------|
| Persimmon  | 1,000      | 65°F       | 80%    | To initiate degreening. To remove astringency and to soften     | 2 days                           |
| Pineapples | 1,000      | 65°F       | 40%    | To initiate degreening  | 3 to 4 days                      |
| Tomatoes   | 100 to 150 | 65 to 70°F | 85/90% | To initiate degreening & ripening                               | 6 days observe daily             |
| Walnuts    | 1,000      | 70 to 80°F | low    | To loosen hulls thoroughly<br>Ventilate before each application | 2 1/2-3 1/2 days<br>apply 2x/day |

Proposed right panel End