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FEB 03 1987

Union Carbide Corporation  
Linde Division  
39 Old Ridgebury Road (R-4678)  
Danbury, CT 06817

Attention: Algirdas G. Vilkas

Gentlemen:

Subject: Ethylene Oxide  
EPA Registration No. 10330-13  
Your Amendment Application Dated October 21, 1986

The amendment referred to above, submitted in connection with registration under section 3(c)(7)(A) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), is acceptable provided that you:

1. Submit/cite all data required for registration/reregistration of your product under FIFRA section 3(c)(5) when the Agency requires all registrants of similar products to submit such data.
2. Make the labeling change listed below before you release the product for shipment bearing the amended labeling:
  - Delete the term "GENERAL CLASSIFICATION."
3. Submit five (5) copies of your final printed labeling before you release the product for shipment.

90198:Lee:L-4:KENCO:1/21/87:1/31/87:de:lf

CONCURRENCES

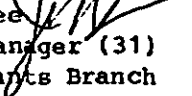
CONCURRENCES							
SYMBOL ▶							
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DATE ▶							

2/6

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

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

Sincerely yours,

  
John H. Lee  
Product Manager (31)  
Disinfectants Branch  
Registration Division (TS-767C)

Enclosure

3/6

CGA-510

# ETHYLENE OXIDE

STERILANT - FUMIGANT GAS

UN1040

ACTIVE INGREDIENT 100% BY WEIGHT

NET CONTENTS 4 LBS. (1.8Kg)

BEFORE USING PRODUCT READ WARNING LABEL ON SIDE OF CYLINDER



LINDE SPECIALTY GASES

ETH-0108 (0/03)

CGA-510

# ETHYLENE OXIDE

STERILANT - FUMIGANT GAS

UN1040

ACTIVE INGREDIENT 100% BY WEIGHT

NET CONTENTS 15 LBS. (6.8Kg)

BEFORE USING PRODUCT READ WARNING LABEL ON SIDE OF CYLINDER



LINDE SPECIALTY GASES

ETH-0110 (0/03)

ACCEPTED  
WITH COMMENTS  
In 10330-13

FEB 03 1987

10330-13

CGA-510

# ETHYLENE OXIDE

STERILANT - FUMIGANT GAS

UN1040

ACTIVE INGREDIENT 100% BY WEIGHT

NET CONTENTS 175 LBS. (79.4Kg)

BEFORE USING PRODUCT READ WARNING LABEL ON SIDE OF CYLINDER



LINDE SPECIALTY GASES

ETH-0120 (0/03)

CGA-510

# ETHYLENE OXIDE

STERILANT - FUMIGANT GAS

UN1040

ACTIVE INGREDIENT 100% BY WEIGHT

NET CONTENTS 400 LBS. (181.4Kg)

BEFORE USING PRODUCT READ WARNING LABEL ON SIDE OF CYLINDER



LINDE SPECIALTY GASES

ETH-0130 (0/03)

FEB 08 1987

This product is a fumigant,  
and should be used only in  
accordance with the directions  
registered under EPA Reg. No.

10330-13

**ETHYLENE OXIDE**  
STERILANT-FUMIGANT GAS

ACTIVE INGREDIENT-ETHYLENE OXIDE 100% BY WEIGHT  
DANGER-EXTREMELY FLAMMABLE

**STERILIZATION**

1. Use Ethylene Oxide only in sterilizers designed for use with Ethylene Oxide.
2. Use Ethylene Oxide in accordance with directions supplied by the sterilizer manufacturer.
3. Sterilizer temperature and pressure influence both exposure time and Ethylene Oxide concentration. The variation of type and quantity of material to be sterilized, how packed, size of sterilizer, types of bacteria to be killed, and chamber relative humidity also affect the exposure time required for sterilization. Gas sterilizer cycle parameters should be those prescribed by the sterilizer manufacturer, if applicable. If other cycle parameters are used, the efficacy of the alternate cycle must be validated and is the responsibility of the user.
4. Aerate sterilized materials before use.

**FUMIGATION**

1. Fumigation with Ethylene Oxide must be performed only in vacuum or gas-tight chambers designed for use with Ethylene Oxide.
2. Aerate fumigated materials before use.

**FOOD TREATMENT: 21 CFR 193.200**

"Ethylene Oxide may be safely used as a fumigant for the control of microorganisms and insect infestation in ground spices or other processed natural seasoning materials, except mixtures to which salt has been added..."

"Ethylene Oxide, either alone or admixed with carbon dioxide or dichlorodifluoromethane, shall be used in amounts not to exceed that required to accomplish the intended technical effects."

Union Carbide Corporation—Linde Division, Danbury, CT 06817

**LINDE SPECIALTY GASES**

STT-0100 (3/83)

**GENERAL CLASSIFICATION**

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

**STORAGE AND DISPOSAL**

Return cylinder to supplier.  
Store according to instructions provided on label and tag.

**DIRECTIONS FOR USE**

To be used only by persons experienced in Ethylene Oxide sterilization and fumigation, or by persons under direct supervision of persons who are experienced in Ethylene Oxide sterilization and fumigation. Use only in accordance with directions given on this tag and the safety precautions listed on the label. See current Union Carbide Corporation, Linde Division Material Safety Data Sheet Form 4798 and safe practices sheet 3499 for additional safety information.

**GENERAL INSTRUCTIONS**

1. This container is equipped with an eductor tube and designed to discharge liquid.
2. This container has been pressurized with nitrogen to a pressure of 50 psig (345 kPa) at 70°F (21.1°C). Pressure will be lower if temperature is above 70°F (21.1°C); lower if temperature is below 70°F (21.1°C). Contact supplier if, upon receipt, tank pressure is below 50 psig (345 kPa) at 70°F (21.1°C).
3. Container must be in upright position when discharged. Container must be secured to prevent falling over.
4. Discharge valve outlet is provided with a CGA 510 connection which has left-hand threads.
5. EOX-style cylinders and DOT-5P drums are also provided with a CGA 580 pressurization valve which has right-hand threads. Do not discharge product from the CGA 580 pressurization valve.
6. Remove protective valve plugs and make sure valve threads are undamaged. Do not attach ordinary pipe fitting to valves.
7. Use steel fittings and piping or Teflon-lined stainless steel tubing. Do not use rubber, plastics, or copper materials. Ground all equipment, including cylinders, to avoid sparks.
8. Install check valves in the discharge line from this container to processing equipment to prevent back-flow into container.
9. Connect the CGA 580 pressurization valve to a source of nitrogen using a line equipped with a pressure regulating check valve. Nitrogen pressure must not exceed 50 psig (345 kPa). Never use compressed air or other gas to pressurize the cylinder or drum.
10. Open both valves by turning handwheel counterclockwise. Use standard "T" wrenches (Linde P/N SG6214 and SGB6214) to open and close cylinder valves. Never use an open-end wrench or other leverage device to open or close cylinder valves.
11. Replace valve plugs tightly in valve outlets before returning container to supplier.

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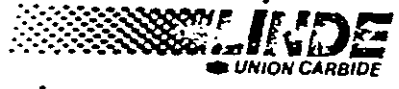
**BEST AVAILABLE COPY**

5/0

# DRUM WEIGHT TAG

*blue* →

↙ *GREEN*



SERIAL NUMBER \_\_\_\_\_

EMPTY WEIGHT \_\_\_\_\_

NET CONTENTS 400 POUNDS EO

GROSS WEIGHT \_\_\_\_\_

**SAFETY FIRST!**  
 BEFORE USING OR HANDLING THIS PRODUCT YOU MUST  
 READ AND UNDERSTAND THE PRODUCT LABEL AND TAG,  
 LINDE SAFETY PRECAUTIONS BOOKLET FORM L-3499,  
 AND MSDS FORM L-4798.



**ACCEPTED**

FEB 03 1987

Registered under  
 EPA Reg. No. 10330-13

*Green* →

THANK YOU FOR BUYING LINDE ETHYLENE OXIDE

← *Green*

**BEST AVAILABLE COPY**

# ETHYLENE OXIDE

STERILANT-FUMIGANT GAS • ACTIVE INGREDIENT 100% BY WEIGHT

**DANGER!** EXTREMELY FLAMMABLE LIQUID AND GAS UNDER PRESSURE, MAY FORM EXPLOSIVE MIXTURES WITH AIR. HARMFUL IF INHALED. CAUSES EYE AND SKIN BURNS.

- DANGER: CANCER HAZARD AND REPRODUCTIVE HAZARD
- OTHER POSSIBLE DELAYED HEALTH EFFECTS may be nervous system injury, chromosomal changes, and cataracts.
- EFFECTS OF OVEREXPOSURE may be nausea, vomiting, diarrhea, numbness, weakness, loss of muscle coordination, dizziness, drowsiness, convulsions, loss of consciousness, irritation of lungs, delayed lung injury (fluid in lungs), breathing difficulties, blisters on skin, allergic skin reaction.

PEL: 1PPH-TWA (OSHA-29CFR1910.1047)

ODOR: Ether-like at high concentrations.

Keep away from heat, flame and sparks. Do not breathe vapor. Do not get in eyes, on skin or clothing. Use only in a closed system. Store and use with adequate ventilation. No part of the container may be exposed above 125°F (52°C). Close valve when not in use and when empty. Use in accord with tag attached to valve.

**FIRST AID:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician. **IN CASE OF CONTACT,** immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Aerate, wash or clean contaminated clothing and discard leather goods.

**LEAK:** Evacuate area and keep personnel upwind. Shut off all sources of ignition. Use self-contained breathing apparatus and protective clothing, and shut off leak if without risk.

**FIRE:** Do not extinguish burning gas if flow cannot be shut off immediately. Move container away from fire if without risk. Use water spray or fog nozzle to keep container cool.

**IN EMERGENCY:** Call CHEMTREC 800-424-9300.

**BEFORE USING OR HANDLING THIS PRODUCT YOU MUST ALSO READ AND UNDERSTAND LINDE SAFETY PRECAUTIONS BOOKLET FORM L-3499 AND MSDS FORM L-4798.**

**FOR INDUSTRIAL USE ONLY. NOT FOR USE IN HOSPITALS OR IN HEALTH CARE FACILITIES.**

Union Carbide Corporation — Linde Division, Danbury, CT 06817

DOT/IMO Shipping Name: Ethylene Oxide UN1040

CAS: 75-21-8

EPA Reg. No. 10030-13 EPA Est. No. 10030-

BATCH-

**LINDE SPECIALTY GASES**

MADE IN USA

DO NOT REMOVE THIS LABEL 875-000 18/86

ACCEPTED

FEB 03 1987

10330-13

BEST AVAILABLE COPY

# ETHYLENE OXIDE

STERILANT-FUMIGANT GAS

ACTIVE INGREDIENT 100% BY WEIGHT

**DANGER! EXTREMELY FLAMMABLE LIQUID AND GAS UNDER PRESSURE. MAY FORM EXPLOSIVE MIXTURES WITH AIR. HARMFUL IF INHALED. CAUSES EYE AND SKIN BURNS.**

• **DANGER! CANCER HAZARD AND REPRODUCTIVE HAZARD.**

• **OTHER POSSIBLE DELAYED HEALTH EFFECTS** may be nervous system injury, chromosomal changes, and cataracts

• **EFFECTS OF OVEREXPOSURE** may be nausea, vomiting, diarrhea, numbness, weakness, loss of muscle coordination, dizziness, drowsiness, convulsions, loss of consciousness, irritation of lungs, delayed lung injury (fluid in lungs), breathing difficulties, blisters on skin, allergic skin reaction.

PEL: 1PPM-TWA (OSHA-29CFR1910 1047)

ODOR: Ether-like at high concentrations

Keep away from heat, flame and sparks. Do not breathe vapor. Do not get in eyes, on skin or clothing. Use only in a closed system. Store and use with adequate ventilation. No part of the container may be exposed above 125°F (52°C). Close valve when not in use and when empty. Use in accord with tag attached to valve.

**FIRST AID:** IF INHALED, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician. IN CASE OF CONTACT, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Aerate, wash or clean contaminated clothing and discard leather goods.

**LEAK:** Evacuate area and keep personnel upwind. Shut off all sources of ignition. Use self-contained breathing apparatus and protective clothing, and shut off leak if without risk.

**FIRE:** Do not extinguish burning gas if flow cannot be shut off immediately. Move container away from fire if without risk. Use water spray or fog nozzle to keep container cool.

**IN EMERGENCY:** Call CHEMTREC 800-424-9300

**BEFORE USING OR HANDLING THIS PRODUCT YOU MUST ALSO READ AND UNDERSTAND LINDE SAFETY PRECAUTIONS BOOKLET FORM L-3499 AND MSDS FORM L-479R.**

FOR INDUSTRIAL USE ONLY NOT FOR USE IN HOSPITALS OR IN HEALTH CARE FACILITIES.

DOT/IMO Shipping Name Ethylene Oxide UN1040 CAS 75-21-8

EPA Reg No 10330-13

EPA Est No 10330-

BATCH-

Union Carbide Corporation  
Linde Division, Danbury, CT 06817

MADE IN USA

DO NOT REMOVE THIS LABEL

**LINDE SPECIALTY GASES**

STB-0300 (7/87)

27267

RQ

# ETHYLENE OXIDE

STERILANT - FUMIGANT GAS  
UN1040  
CAS: 75-21-8  
ACTIVE INGREDIENT 100% BY WEIGHT  
NET CONTENTS 4 LBS. (1.8kg)

EDUCTOR  
TUBE

LINDE SPECIALTY GASES

RQ

# ETHYLENE OXIDE

STERILANT - FUMIGANT GAS  
UN1040  
CAS: 75-21-8  
ACTIVE INGREDIENT 100% BY WEIGHT  
NET CONTENTS 4 LBS. (1.8kg)

EDUCTOR  
TUBE

LINDE SPECIALTY GASES

RQ

# ETHYLENE OXIDE

STERILANT - FUMIGANT GAS  
UN1040  
CAS: 75-21-8  
ACTIVE INGREDIENT 100% BY WEIGHT  
NET CONTENTS 4 LBS. (1.8kg)

EDUCTOR  
TUBE

LINDE SPECIALTY GASES

RQ

# ETHYLENE OXIDE

STERILANT - FUMIGANT GAS  
UN1040  
CAS: 75-21-8  
ACTIVE INGREDIENT 100% BY WEIGHT  
NET CONTENTS 4 LBS. (1.8kg)

EDUCTOR  
TUBE

LINDE SPECIALTY GASES





3053

**NOT REVIEWED**  
In Accordance with CFR Notice 82-2.  
Based on Departmental Listing Dated

DO NOT REMOVE THIS TAG

## ETHYLENE OXIDE

STERILANT-FUMIGANT GAS  
ACTIVE INGREDIENT-ETHYLENE OXIDE 100%, BY WEIGHT  
DANGER-EXTREMELY FLAMMABLE

L-14-101

### 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 Ethylene Oxide sterilization and fumigation, or by persons under direct supervision of persons who are experienced in Ethylene Oxide sterilization and fumigation. Use only in accordance with directions given on this tag and the safety precautions listed on the body label. See current Union Carbide Corporation, Union Division, Material Safety Data Sheet Form L-4788 and safe practices booklet L-3439 for additional safety information.

### GENERAL INSTRUCTIONS

1. This container is equipped with an educator tube and is designed to discharge liquid.
2. This container has been pressurized with nitrogen to a pressure of 50 psig (345 kPa) at 70°F (21.1°C). Pressure will be higher if temperature is above 70°F (21.1°C); lower if temperature is below 70°F (21.1°C). Contact supplier if, upon receipt, container pressure is below 50 psig (345 kPa) at 70°F (21.1°C).
3. Container must be in upright position when discharging. Container must be secured to prevent falling over.
4. Discharge valve outlet is provided with a CGA 510 connection which has left-hand threads.
5. EDC-angle gaskets and DOT-SP drums are also provided with a CGA 590 pressurization valve which has right-hand threads. Do not discharge product from the CGA 590 pressurization valve.
6. Remove protective valve plugs and make sure valve threads are undamaged. Do not attach an ordinary pipe fitting to these valves.
7. Use steel fittings and piping or Teflon-lined stainless steel tubing. Do not use rubber, plastic, or copper materials. Ground all equipment, including cylinders, to avoid static sparks.
8. Install check valves in the discharge line from this container to processing equipment to prevent back-flow into container.
9. Connect the CGA 590 pressurization valve to a source of nitrogen using a line equipped with a pressure regulator and check valve. Nitrogen pressure must not exceed 50 psig (345 kPa). Never use compressed air or other gases to pressurize the cylinder or drum.
10. Open both valves by turning handwheel counterclockwise. Use standard "T" wrenches (Under PN SG8214 and SG88215) to open and close cylinder valves. Never use an ordinary wrench or other leverage device to open or close cylinder valves.
11. Replace valve plugs tightly in valve outlets before returning container to supplier.

(Continued on back)

**STORAGE AND DISPOSAL**  
Store according to instructions provided on label and the tag. Return cylinder to supplier.

### STERILIZATION

1. Use Ethylene Oxide only in sterilizers designed for use with Ethylene Oxide.
2. Use Ethylene Oxide in accordance with directions supplied by the sterilizer manufacturer.
3. Sterilizer temperature and pressure influence both exposure time and Ethylene Oxide concentration. The variation of type and quantity of material to be sterilized, how packed, size of sterilizer, types of bacteria to be killed, and chamber relative humidity also affect the exposure time required for sterilization. Gas sterilizer cycle parameters should be those prescribed by the sterilizer manufacturer, if applicable. If other cycle parameters are used, the efficacy of the alternate cycle must be validated and is the responsibility of the user.
4. Avoid sterilized materials before use.

### FUMIGATION

1. Fumigation with Ethylene Oxide must be performed only in vacuum or gas-tight chambers designed for use with Ethylene Oxide.
2. Avoid fumigated materials before use.

### FOOD TREATMENT: 21 CFR 183.270

Ethylene Oxide may be safely used as a fumigant for the control of microorganisms and insect infestation in ground spices or other processed natural seasoning materials, except mixtures to which salt has been added. . . .  
Ethylene Oxide, other gases or solutions with carbon dioxide or dichlorodimethylsilane, shall be used in amounts not to exceed that required to accomplish the intended technical effect.

**UNION CARBIDE SECURITY GASES**

Union Carbide Corporation  
Union Division  
Denville, Connecticut 07834

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