

PA 21  
10-1-5  
193

# OXYFUME® 12

STERILANT-FUMIGANT GAS

ACTIVE INGREDIENT ETHYLENE OXIDE 12% BY WEIGHT

INERT INGREDIENT

DICHLORODIFLUOROMETHANE 88% BY WEIGHT

**DANGER! NONFLAMMABLE LIQUID AND GAS UNDER PRESSURE.  
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 (ETHYLENE OXIDE)

(OSHA-29CFR1910 1047)

ODOR: Ether-like at high concentrations

Do not breathe gas. Do not get in eyes, on skin or clothing. Store and use with adequate ventilation. No part of the cylinder 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. Use self-contained breathing apparatus and protective clothing, and shut off leak if without risk.

**FIRE:** Use water spray or fog nozzle to keep cylinder cool. Move cylinder away from fire if without risk.

**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-4799.**

FOR HOSPITAL AND INDUSTRIAL USE ONLY

This product contains Chlorofluorocarbon-12

Classified by Underwriters Laboratories, Inc. as to fire hazard only. Oxyfume® 12 Sterilant-Fumigant. The product supplied liquefied under pressure is non-flammable at ordinary temperatures, but at

higher temperatures (ignition temperature 463°C, 865°F), is capable of forming weakly combustible mixtures with air which do not propagate flame throughout the mixture. Control No. 998P

DOT Shipping Name  
Compressed Gas N.O.S. UN1956

EPA Reg. No. 10330-5

EPA Est. No. 10330-

BATCH:

IMO Shipping Name  
Compressed Gas, Toxic, N.O.S. UN1955

CAS 75-21-8 (Ethylene Oxide)

CAS 75-71-8 (Dichlorodifluoromethane)

Union Carbide Corporation  
Linde Division, Danbury, CT 06817

MADE IN USA

DO NOT REMOVE THIS LABEL

**LINDE SPECIALTY GASES**

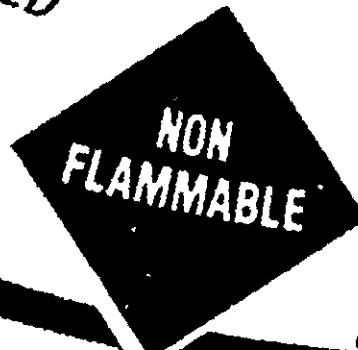
STB-9200 (7/87)

10230-5  
63

COMPRESSED  
GAS N.O.S.  
UN1956



OXYFUME® 12



NOT REVIEWED  
Notice 80-2,  
2-87

STERILANT - FUMIGANT GAS  
ACTIVE INGREDIENT - ETHYLENE OXIDE  
12% BY WEIGHT  
INERT INGREDIENT - DICHLORODIFLUORO-  
METHANE 88% BY WEIGHT  
NET CONTENTS - 5 LBS (2.4 Kg)



~~UN1956~~ SPECIALTY GASES

CAS (75-71-8)(75-21-8)

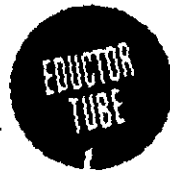
COMPRESSED  
GAS N.O.S.  
UN1956



OXYFUME® 12



STERILANT - FUMIGANT GAS  
ACTIVE INGREDIENT - ETHYLENE OXIDE  
12% BY WEIGHT  
INERT INGREDIENT - DICHLORODIFLUORO-  
METHANE 88% BY WEIGHT  
NET CONTENTS - 55 LBS (24.9 Kg)



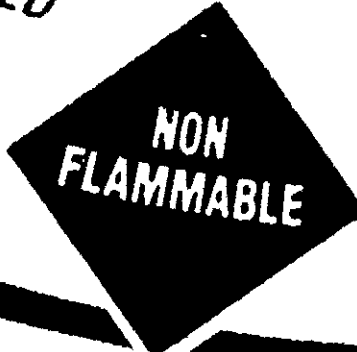
~~UN1956~~ SPECIALTY GASES

CAS (75-71-8)(75-21-8)

COMPRESSED  
GAS N.O.S.  
UN1956



OXYFUME® 12



STERILANT - FUMIGANT GAS  
ACTIVE INGREDIENT - ETHYLENE OXIDE  
12% BY WEIGHT  
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METHANE 88% BY WEIGHT  
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~~UN1956~~ SPECIALTY GASES

CAS (75-71-8)(75-21-8)

Pm 31  
10330-5  
3 of 3

DO NOT REMOVE THIS TAG

L-14-102

## OXYFUME® 12

### STERILANT-FUMIGANT GAS

ACTIVE INGREDIENT-ETHYLENE OXIDE 12% BY WEIGHT  
INERT INGREDIENT-DICHLORODIFLUOROMETHANE  
88% BY WEIGHT

#### 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 Oxyfume® 12 gas sterilization and fumigation, or by persons under direct supervision of persons who are experienced in Oxyfume® 12 gas 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, Linde Division, Material Safety Data Sheet, Form L-4799, and safe practices booklet L-3499 for additional safety information.

#### GENERAL INSTRUCTIONS

1. This cylinder is equipped with an eductor tube and is designed to discharge liquid.
2. The approximate vapor pressure exerted by this gas mixture will be 60 psig (414 kPa) at 70°F (21.1°C) while liquid is present. Vapor pressure will be lower if temperature is below 70°F (21.1°C); higher if temperature is above 70°F (21.1°C).
3. Cylinder must be in upright position when discharging. Cylinder must be secured to prevent falling over.
4. Discharge valve outlet is provided with a CGA 510 connection which has left-hand threads. Remove protective valve plug and make sure valve threads are undamaged. Do not attach ordinary pipe fittings to this valve.
5. Use metal (except aluminum) fittings and piping or Teflon-lined tubing, capable of withstanding the pressure to be encountered. Install pressure relief device where liquid can be trapped between valves. Ethylene-propylene rubber and teflon are suitable materials for gaskets.
6. Open cylinder valve by turning handwheel counterclockwise. Never use a wrench or other leverage device to open or close cylinder valve.
7. Replace valve plug tightly in valve outlet before returning container to supplier.

#### STORAGE AND DISPOSAL

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

#### STERILIZATION

1. Use Oxyfume® 12 only in sterilizers designed for use with 12% by weight Ethylene Oxide and 88% by weight Dichlorodifluoromethane (Refrigerant 12).
2. Use Oxyfume® 12 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

(Continued on back)

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 Oxyfume® 12 should be performed in vacuum or gastight chambers designed for use with 12% by weight Ethylene Oxide and 88% by weight Dichlorodifluoromethane (Refrigerant 12). If vacuum or gastight chambers are not used, precautions must be taken to assure the safety of all potentially exposed personnel.
2. If Oxyfume® 12 is not used in a fumigation chamber, provisions must be made to assure complete vaporization of the liquefied compressed gas by using an appropriately designed heat exchanger or vaporizing nozzle (Linde P/N 201-4080).
3. Place warning signs around areas where material is being fumigated. Ventilate adjacent areas.
4. Use self-contained breathing apparatus and protective clothing if personnel are required in an enclosed area during the initial gassing of that area.
5. Ventilate fumigated area before entering. Aerate fumigated materials before use.
6. Dosage:
  - A. For chamber fumigation at 70°F (21.1°C) or higher, materials such as furs, clothing, furniture, spices, and natural seasonings, are typically treated with 15 pounds (6.8 Kg) by weight of Oxyfume® 12 per 1000 cubic feet (28.3 m³) of chamber space for 16 hours. Treatment may not be effective if material is densely packed.
  - B. For transportation equipment, such as planes, railcars, passenger cars, and buses, at 70°F (21.1°C) or higher, 10 pounds (4.5 Kg) by weight of Oxyfume® 12 is typically used for every 1000 cubic feet (28.3 m³) of vehicle space for 5 to 6 hours.

#### FOOD TREATMENT: 21 CFR 183.200

"Ethylene oxide may be safely used as a fumigant for the control of microorganisms and insect infestation in ground spices and 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** SPECIALTY GASES

Union Carbide Corp.  
Linde Division  
Danbury, Connecticut 06817

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