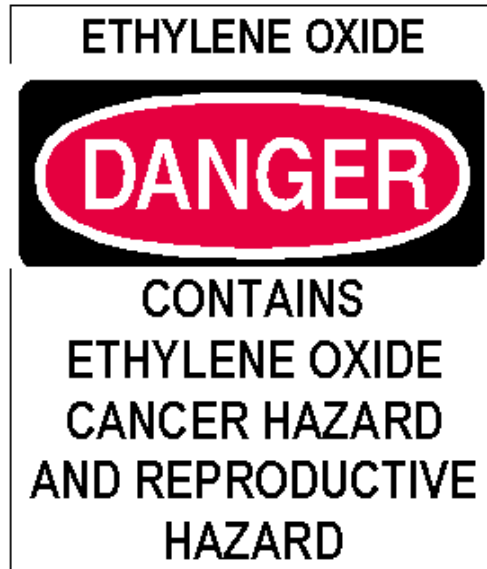


ETHYLENE OXIDE AT DUKE

Information for personnel



OSHA Standard Highlights

PERMISSIBLE EXPOSURE LIMIT

For an 8 hour workday, employee average exposure to ethylene oxide must be under 1 part ethylene oxide per million parts air (1 ppm). (There is an Action Level of 0.5 ppm, and a Short Term Exposure Limit (STEL) of 5 ppm.)

EXPOSURE MONITORING

OSHA requires exposure monitoring if there is a change in process or control equipment that could increase EtO exposures. Additionally, OESO will monitor periodically to verify that exposures continue to be acceptable.

MEDICAL SURVEILLANCE

Duke provides medical surveillance for employees exposed to more than 0.5 ppm (action level) for 30 or more days per year, and to all employees who have been exposed to EtO in an emergency situation.

INFORMATION AND TRAINING

Employees *potentially* exposed at or above the action level or over the STEL must be trained. The training is given initially and annually and covers the OSHA EtO Standard, health hazards, safe work practices, and PPE.

METHODS OF COMPLIANCE

Duke uses ventilation, enclosures, and work practices to control exposure. Respirators may be necessary under some conditions.

HAZARD COMMUNICATION

Labels for EtO canisters must follow OSHA regulations, and Material Safety Data Sheets must be available in your work area.

SHORT TERM EXPOSURE

Effects associated with the various routes of exposure are listed below:

SKIN

Skin contact with liquid ethylene oxide (EtO) can cause frostbite, severe irritation, and/or blistering of the skin.

EYES

Eye contact with liquid ethylene oxide can cause eye irritation and injury of the cornea.

INHALATION

Breathing EtO gas can cause lung irritation and injury, headache, nausea, vomiting, diarrhea, shortness of breath and cyanosis (blue or purple coloring of the skin).

INGESTION

If ethylene oxide is swallowed, it can cause irritation of the stomach and liver injury.

PPE

PPE is not required during normal sterilizer operation.

LONG TERM EXPOSURE

Ethylene Oxide is a suspected human carcinogen and can cause reproductive and neurological effects. The risk becomes greater as the concentration and duration of exposure increase.

STORAGE

Ethylene oxide is highly flammable and cartridges should be stored in an approved flammable liquid storage cabinet.

SPILLS AND LEAKS

If an employee notices liquid EtO spurting or dripping from a cartridge, and/or a cartridge that feels very cold to the touch, he/she should:

- Evacuate the area.
- **Call 911** to report the leak or spill.
- Stand by for an OESO employee to contact you.

FIRST AID PROCEDURES

GET MEDICAL ATTENTION when a high level of EtO gas is inhaled or if liquid EtO is swallowed, gets in the eyes, or splashes on the skin.

INGESTION

If the person is conscious, give them large quantities of water and try to induce vomiting. If the person vomits, lower the head below hips.

INHALATION

Remove the person to fresh air as soon as possible. If the concentration is very high (as in a major leak), call 911.

SKIN

Remove contaminated clothing and wash the affected area with soap and large amounts of water for at least 15 minutes.

EYES

Rinse the eyes immediately with large amounts of water, occasionally lifting lower and upper lids, for at least 15 minutes.

Questions?

Call the Occupational and Environmental Safety Office (OESO) for information on the following topics:

- Recommendations for appropriate Personal Protective Equipment (PPE) for your job
- Air monitoring for ethylene oxide
- Health effects of ethylene oxide
- The OSHA ethylene oxide standard (29 CFR 1910.1047) (You can also view the standard online by clicking “1910.1047” at <http://www.osha.gov/SLTC/ethyleneoxide/compliance.html>)



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