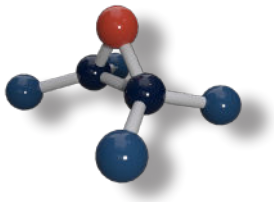
Gas Factsheet

Ethylene oxide



Formula: C_2H_4O
CAS: 75-21-8
Source: Medical Equipment, Commodity fumigated materials & Tobacco
Detection Method: Tiger & Tiger^{LT}

The major use of ethylene oxide is as a chemical intermediate in the manufacture of ethylene glycol. Ethylene oxide is also used as a sterilizing agent for medical equipment and a fumigating agent for spices. Unfortunately, ethylene oxide possesses several physical and health hazards that merit special attention.

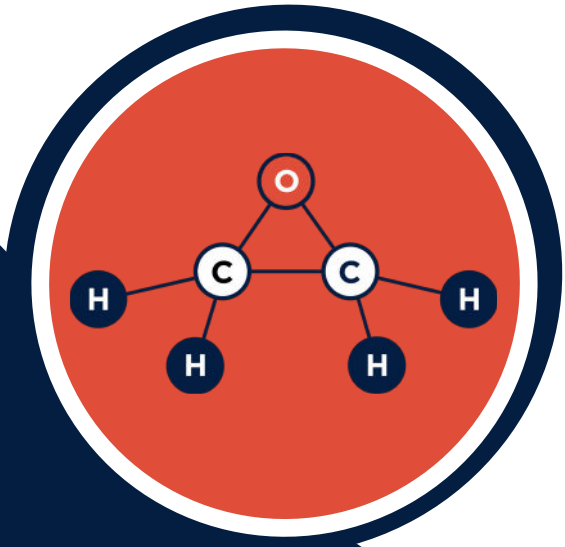
C_2H_4O - LYMPHOMA AND LEUKEMIA CANCER RISKS ARE KNOWN TO BE ASSOCIATED

What is Ethylene Oxide

At room temperature, ethylene oxide is a flammable colourless gas with a sweet odour. It is used primarily to produce other chemicals, including antifreeze. In smaller amounts, ethylene oxide is used as a pesticide and a sterilizing agent. The ability of ethylene oxide to damage DNA makes it an effective sterilizing agent but also accounts for its cancer-causing activity.

Why Do We Use Ethylene Oxide

Ethylene oxide is used mainly as a chemical intermediate in the manufacture of ethylene glycol (antifreeze), textiles, detergents, polyurethane foam, solvents, medicine, adhesives, and other products. Relatively small amounts of ethylene oxide are used as a fumigant, as a sterilant for food (spices) and cosmetics, and in hospital sterilization of surgical equipment and plastic devices that cannot be sterilized by steam.



When Exposed To Ethylene Oxide

The general population may be exposed to ethylene oxide through breathing contaminated air or from smoking tobacco or being near someone who is smoking. Certain occupational groups (e.g., workers in ethylene oxide manufacturing or processing plants, sterilization technicians, and workers involved in fumigation) may be exposed in the workplace.

Many workers are unaware of the potential hazards in their work environment, which makes them more vulnerable to injury. In addition to eye pain and sore throat, exposure can cause difficult breathing and blurred vision. Exposure can also cause dizziness, nausea, headache, convulsions, blisters and can result in vomiting and coughing. Both human and animal studies show that ethylene oxide is a carcinogen that may cause leukemia and other cancers. Ethylene oxide is also linked to spontaneous abortion, genetic damage, nerve damage, peripheral paralysis, muscle weakness, as well as impaired thinking and memory. In liquid form, ethylene oxide can cause severe skin irritation upon prolonged or confined contact.

Ethylene Oxide Detection Instruments

Portable Instruments

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