

# Ethylene Oxide

## Your Right to Know

### Summary:

*Ethylene Oxide has been shown to cause lung, gland, and uterine tumors in laboratory animals. Ethylene oxide is classified as a Group B1, probable human carcinogen of medium carcinogenic hazard with a 1/ED<sub>10</sub> value of 1.3 per (mg/kg)/d<sup>3</sup>. Limited evidence in both animal and human studies indicate that inhalation exposure to ethylene oxide may result in adverse reproductive effects, such as increased rate of miscarriages.*

### Exposure Risks

Because ethylene oxide is highly reactive, it is capable of directly combining with proteins and DNA when absorbed into the body. Since ethylene oxide reacts directly with DNA, it can be anticipated to cause genetic effects when the exposure is sufficiently high. The genetic effects of ethylene oxide have been examined in both normal body cells (i.e. cells not involved in reproduction) and in cells for reproduction.

Ethylene oxide has a high odor threshold (>250 ppm), and sense of smell does not provide adequate protection against its toxic effects. The effects of exposure are concentration and time dependent. Concentrations of several hundred ppm may be tolerated for a few minutes without significant immediate health effects. But

similar concentrations may cause severe injury, especially if inhaled for longer periods. Overexposure to ethylene oxide will cause irritation of exposed surfaces, including eyes, skin, nose, throat and lungs. If the lungs are affected, secondary infections may lead to pneumonia.

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

### Do You Know Your Ethylene Oxide Exposure?

*Passive dosimeters are the most convenient way to monitor your environment!*

The *Kem Medical EO-TRAK*<sup>®</sup> 8500 ethylene oxide monitor has been validated for the OSHA 8-hour TWA exposure limit of 1.0 ppm and 5.0 ppm for a 15-minute STEL.

All EO-TRAK<sup>®</sup> badges are:

- Accurate, with reproducible results
- Easy to Use
- Designed for personal and area monitoring
- Full validation studies available
- Phone Notification of High Results
- Technical Assistance
- Pre-paid return postage and laboratory analysis inclusive

