FACT SHEET

Ethylene Glycol

CAS #: 107-21-1

This fact sheet provides a summary of the Development Support Document (DSD) created by the TCEQ Toxicology Division (TD) for the development of Regulatory Guidelines (ESLs, AMCVs and ReVs) for ambient exposure to this chemical. For more detailed information, please see the DSD or contact the TD by phone (1-877-992-8370) or e-mail (tox@tceq.state.tx.us).

What is Ethylene Glycol?

Ethylene glycol (EG) is a colorless, odorless liquid with a sweet flavor. EG is used primarily in the production of polyethylene terephthalate for polyester fibers, containers, and films, and is the primary ingredient in most automobile antifreeze reagents and airport de-icing solutions. Other uses for EG include: electrolyte for electrolytic condensers, solvent for dye, component of skin lotions, and solvent for certain pharmaceutical preparations and food extracts. Synonyms for ethylene glycol include: 1,2-dihydroxyethane; 1,2-ethandiol; 1,2-ethane-diol; 2-hydroxyethanol; ethylene alcohol; ethylene dihydrate; glycol; and monoethylene glycol.

How is Ethylene Glycol released into ambient air?

EG may be released into the air through industrial emissions and facilities that use and dispose of antifreeze and de-icing reagents.

How can Ethylene Glycol affect my health?

Permitted levels of EG should not cause adverse health or welfare effects. The most common route of exposure in humans is through dermal contact with EG-containing antifreeze. Other routes of exposure include inhalation of EG vapors and dermal contact with contaminated soil and water, typically around or near industrial sites. Oral exposure to sufficiently high doses of EG can lead to central nervous system depression, metabolic acidosis and associated cardiopulmonary symptoms, and ultimately nephrotoxicity and renal failure, possibly leading to death. Low exposure via inhalation or dermal uptake, however, is far more common and appears to be much less significant toxicologically than exposure through ingestion.

Human and animal studies have been conducted on the inhalation toxicity of EG. Exposure to EG has been shown to adversely affect the respiratory system in short-term studies. Long-term studies have shown that EG can cause eye irritation and nonspecific inflammatory changes in the lungs of laboratory animals. There is no definitive evidence that EG causes cancer and it has not been classified as causing cancer by the International Agency for Research on Cancer, the United States Environmental Protection Agency, the American Conference of Industrial Hygienists, or the National Toxicology Program.

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Is Ethylene Glycol odorous to humans or harmful to plants?

EG is a colorless, odorless liquid and ambient air levels have not been shown to adversely affect vegetation.

Why does the TCEQ set Regulatory Guidelines for Ethylene Glycol?

The TCEQ has set various air quality guideline levels (ESLs, AMCVs and ReVs) to protect human health and welfare. Please see Definitions of ESLs, ReVs, and AMCVs located on the TCEQ DSD webpage for more information. The air quality guideline levels for EG have been designed to protect the general public from short-term and long-term adverse health and welfare effects. The general public includes sensitive populations such as children, the elderly, pregnant women and people with pre-existing health conditions. If you would like to know more about the specific ESLs, AMCVs and ReVs developed, what the values are and what they are used for, please see the DSD on the TCEQ website.