



American College of Medical Toxicology

Physicians Specializing in the Care of Poisoned Patients

## **ETHYLENE GLYCOL**

### **What is ethylene glycol?**

Ethylene glycol (EG) is a colorless, odorless, bittersweet-tasting liquid that has many household and commercial uses. Ethylene glycol is a “toxic alcohol”, meaning that although chemically it is similar to ethanol (the active component of alcoholic beverages), it is much more poisonous if consumed.

### **Which products contain ethylene glycol?**

Automotive antifreeze, containing 95% ethylene glycol, is the most common source of EG poisoning. EG is also found in certain brake fluids, windshield-washer fluids, de-icers, cosmetics, adhesives, ink, detergents, fire extinguishers, paints, pesticides, and polishes.

### **How do I know if a product contains ethylene glycol?**

Product packaging should contain a list of the product’s ingredients. If it does not, many products have “material safety data sheets” (MSDS) available on-line.

### **What happens if ethylene glycol is splashed on the skin or in the eye?**

Skin exposure to ethylene glycol can cause skin irritation but is otherwise not especially dangerous. In case of skin exposure to EG, remove wet clothing with EG on it, then wash the affected skin with soap and water.

If EG is splashed into the eye, it can cause swelling of the eyelid as well as inflammation and redness of the eye. Wash the eye with large amounts of cool water for 10-15 minutes, and then seek medical attention.

### **What symptoms can occur if ethylene glycol is swallowed?**

If you or someone you know accidentally or intentionally swallows EG, seek medical attention immediately or call your local Poison Control Center (1-800-222-1222). Do not try to induce vomiting. EG can cause nausea, vomiting, slurred speech, dizziness, unsteady gait, and abdominal pain. A person who is poisoned with EG may appear drunk. They may also have a sweet aromatic odor to their breath. Sometimes a person may look completely well for several hours after drinking a dangerous amount of EG. About 3-12 hours after ingestion, a person can develop seizures, tremors, rapid shallow breathing, and worsening sleepiness that may progress to coma and death. Kidney failure is a well-known complication of EG poisoning.

Serious effects of poisoning can be prevented if medical treatments are provided soon after ingestion.

**Is there an antidote for ethylene glycol poisoning?**

Ethanol and fomepizole are used as antidotes in the treatment of EG poisoning. These antidotes work by preventing the body from metabolizing EG into even more dangerous toxins. By stopping the breakdown of EG, further damage to the body may be prevented, but the antidotes do not reverse any damage that has already occurred. For this reason other treatments may be needed in addition to an antidote.

**Are there long-term complications from ethylene glycol poisoning?**

The long-term problems may depend on the severity of the initial poisoning. Mild exposures usually do not produce long-term complications if medical care is sought early. In serious poisonings, the kidneys can fail and death can occur.

**Can ethylene glycol exposure cause cancer?**

Ethylene glycol is not known to cause cancer.

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