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Confirming Ethylene Glycol Poisoning

What is ethylene glycol?

Ethylene glycol is the most common and the most dangerous form of **antifreeze**. Ethylene glycol can also be found in some film processing solutions.

How do animals get ethylene glycol poisoning?

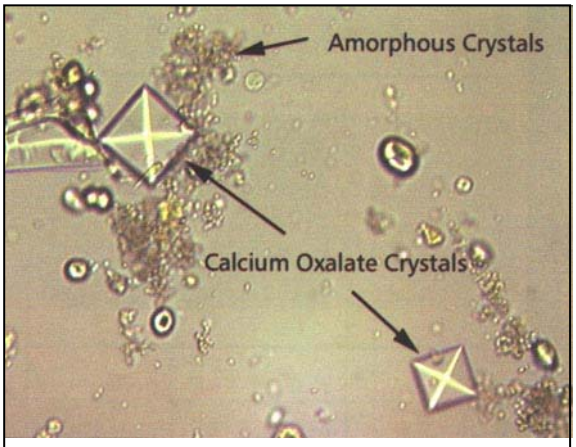
Dogs and cats are attracted to ethylene glycol by its sweet taste. Many animals will voluntarily drink ethylene glycol if antifreeze is spilled or leaks onto garage floors or driveways.

What are the signs of ethylene glycol poisoning?

Early signs, which may be seen within 30 minutes of toxin ingestion, include depression, vomiting, incoordination, excessive urination, excessive thirst, and muscle twitching.

In as little as 12 to 36 hours, signs of severe kidney dysfunction, which is characterized by swollen, painful kidneys and the production of minimal to no urine, may occur. At this time, the animal may exhibit seizures, or become comatose. Vomiting and excessive salivation (drooling) may also be noted.

Therefore it is critical that you bring your pet to a veterinary clinic if you know that he has consumed ethylene glycol, if you suspect that he may have consumed ethylene glycol, or if he is exhibiting any of the early clinical signs. Do not wait! Time is of the essence and immediate treatment is essential!!



From: **Laboratory Urinalysis and Hematology**
by Carolyn Sink
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How do we confirm ethylene glycol poisoning?

Ethylene glycol is converted by the liver into toxic products which cause direct damage to the kidneys. This damage can be measured in a ***serum biochemistry profile*** by increases in the metabolites

creatinine and BUN (blood urea nitrogen) that are normally removed from the blood by the kidneys. However, these biochemical tests are not specific for ethylene glycol toxicity. A ***urinalysis*** may also confirm kidney damage by the presence of dilute urine containingblood, protein, cellular casts (plugs of cells which have taken the shape of dying tubules from the kidneys), and ***calcium oxalate crystals***. Disturbances of the normal acid/base balance of blood also occur with ethylene glycol toxicity. The metabolites of ethylene glycol cause the animal's blood to become very acidic. This ***acidosis*** can be detected in a ***serum biochemistry profile*** as decreases in the bicarbonate concentration and increases in the anion gap.

Some commercial veterinary laboratories and some human laboratories offer blood tests to detect ethylene glycol. In addition, there is a ***test kit*** that can be used in the veterinary clinic to detect the amount of ethylene glycol present in the bloodstream. Since peak levels of ethylene glycol are detected in 1 to 6 hours after ingestion of the toxin, it is important that this test kit be used early in the course of suspected poisonings. By 72 hours after ingestion, insufficient ethylene glycol remains to allow detection.

This client information sheet is based on material written by Kristiina Ruotsalo, DVM, DVSc, Dip ACVP & Margo S. Tant BSc, DVM, DVSc.