ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

# BIS(2-CHLOROETHYL) ETHER

## CAS # 111-44-4

Agency for Toxic Substances and Disease Registry ToxFAQs July 1999

**This fact sheet answers the most frequently asked health questions (FAQs) about bis(2-chloroethyl) ether. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.**

**HIGHLIGHTS: Bis(2-chloroethyl) ether is mainly used as a chemical intermediate to make pesticides, but some of it is used as a solvent and cleaner. It is irritating to the skin, eyes, nose, throat, and lungs. Bis(2-chloroethyl) ether has been found at 81 of the 1,518 National Priorities List sites identified by the Environmental Protection Agency (EPA).**

### What is bis(2-chloroethyl) ether?

(Pronounced bĭs′ 2 klôr′ō ĕth′əl ē′thər)

Bis(2-chloroethyl) ether is a colorless, nonflammable liquid with a strong unpleasant odor. It dissolves easily in water, and some of it will slowly evaporate to the air. It does not occur naturally.

Bis(2-chloroethyl) ether is made in factories, and most of it is used to make pesticides. Some of it is used as a solvent, cleaner, component of paint and varnish, rust inhibitor, or as a chemical intermediate to make other chemicals.

### What happens to bis(2-chloroethyl) ether when it enters the environment?

- ❑ Bis(2-chloroethyl) ether released to air can be broken down by reactions with other chemicals and sunlight or can be removed by rain.
- ❑ In water, it can be broken down by bacteria.
- ❑ When released to soil, some will filter through the soil to groundwater, some will be broken down by bacteria, and some will evaporate to the air.
- ❑ Bis(2-chloroethyl) ether does not build up in the food chain.

### How might I be exposed to bis(2-chloroethyl) ether?

- ❑ You are most likely to be exposed to bis(2-chloroethyl) ether if you work in a factory where it is made or used.
- ❑ People who live near a waste site or industrial facility containing bis(2-chloroethyl) ether may be exposed to it in the air they breathe or by touching contaminated soil.
- ❑ You could be exposed if you drank water that was contaminated with bis(2-chloroethyl) ether.

### How can bis(2-chloroethyl) ether affect my health?

Bis(2-chloroethyl) ether causes irritation to the skin, eyes, throat, and lungs. In some cases, damage to the lungs can be severe enough to cause death. Breathing low concentrations will cause coughing and nose and throat irritation.

Animal studies show effects similar to those observed in people. These effects include irritation to the skin, nose, and lungs; lung damage; and a decrease in growth rate. Animals that survived the exposures recovered fully in 4 to 8 days.

Some animal studies indicate that bis(2-chloroethyl) ether can affect the nervous system resulting in sluggish and slow movement, staggering, unconsciousness, and death.

We do not know if bis(2-chloroethyl) ether causes reproductive effects or birth defects in people or animals.

## How likely is bis(2-chloroethyl) ether to cause cancer?

The ability of bis(2-chloroethyl) ether to cause cancer in humans has not been established. There is some evidence that bis(2-chloroethyl) ether causes cancer in mice. The International Agency for Research on Cancer (IARC) has determined that bis(2-chloroethyl) ether is not classifiable as to its carcinogenicity in humans.

## Is there a medical test to show whether I've been exposed to bis(2-chloroethyl) ether?

There are tests that can detect bis(2-chloroethyl) ether in some animal tissues and in environmental samples, but these tests have not been developed for measuring bis(2-chloroethyl) ether in people.

## Has the federal government made recommendations to protect human health?

The EPA recommends that levels in lakes and streams should be limited to 0.03 parts per billion parts of water (0.03 ppb) to prevent possible health effects from drinking water or eating fish contaminated with bis(2-chloroethyl) ether. Any release to the environment greater than 10 pounds of bis(2-chloroethyl) ether must be reported to the EPA.

The Occupational Safety and Health Administration (OSHA) has set a limit of 15 parts per million (15 ppm) over an 8-hour workday, 40-hour workweek.

The National Institute of Occupational Safety and Health (NIOSH) recommends that workplace air should not exceed 5 ppm bis(2-chloroethyl) ether averaged over a 10-hour workday or 40-hour workweek. Their recommended short-term exposure limit (up to 15 minutes) is 10 ppm averaged over an 8-hour period.

The federal recommendations have been updated as of July 1999.

## Glossary

Carcinogenicity: Ability to cause cancer.

CAS: Chemical Abstracts Service.

Evaporate: To change into a vapor or a gas.

National Priorities List: A list of the nation's worst hazardous waste sites.

Pesticide: A substance that kills pests.

ppb: Parts per billion.

ppm: Parts per million.

## References

Agency for Toxic Substances and Disease Registry (ATSDR). 1989. Toxicological profile for bis(2-chloroethyl) ether. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

**Where can I get more information?** For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop E-29, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 404-498-0093. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.