

This fact sheet answers the most frequently asked health questions (FAQs) about bis(chloromethyl) 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(chloromethyl) ether is only used in small amounts inside fully enclosed systems to make other chemicals. Use of this chemical is highly restricted, so chances for exposure are very low. Bis(chloromethyl) ether is highly irritating to the skin, eyes, nose, throat, and lungs and it is a carcinogen. Bis(chloromethyl) ether has been found at 2 of the 1,518 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is bis(chloromethyl) ether?

(Pronounced bĭs/ klôr'ō mĕth'əl ē'thər)

Bis(chloromethyl) ether is a clear liquid with a strong unpleasant odor. It does not occur naturally. It dissolves easily in water, but degrades rapidly and readily evaporates into air.

In the past, it was used to make several types of polymers, resins, and textiles, but its use is now highly restricted. Only small quantities of bis(chloromethyl) ether are produced in the United States. The small quantities that are produced are only used in enclosed systems to make other chemicals. However, small quantities of bis(chloromethyl) ether may be formed as an impurity during the production of another chemical, chloromethyl methyl ether.

What happens to bis(chloromethyl) ether when it enters the environment?

- Bis(chloromethyl) ether released to air can be broken down by reactions with other chemicals and sunlight, or it can be removed by rain.
- In water, it is broken down quickly to formaldehyde and hydrochloric acid.

- When released to soil, some will evaporate to the air but most of it will be broken down by reacting with soil moisture.
- Bis(chloromethyl) ether does not build up in the food chain and does not last long in the environment.

How might I be exposed to bis(chloromethyl) ether?

- Because bis(chloromethyl) ether does not last long in the environment and because of its restricted use, you are not likely to be exposed to this chemical.
- The most likely way to be exposed is by breathing it in the air if you work at, or live near, an industrial facility that makes or uses chemicals that may contain bis(chloromethyl) ether as a contaminant.

How can bis(chloromethyl) ether affect my health?

Bis(chloromethyl) 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.

ToxFAQs Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaq.html>

Animal studies show effects similar to those observed in people. These effects include irritation to the skin, nose, and lungs and lung damage (swelling and bleeding). Application of the liquid to the skin of mice and rabbits has produced hair loss, bleeding, swelling, and destruction of tissue.

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

How likely is bis(chloromethyl) ether to cause cancer?

There is evidence that bis(chloromethyl) ether causes lung cancer and other tumors in people and animals. The Department of Health and Human Services (DHHS) has determined that bis(chloromethyl) ether is a known human carcinogen.

Is there a medical test to show whether I've been exposed to bis(chloromethyl) ether?

Because bis(chloromethyl) ether is broken down rapidly in the body, there are no specific tests to determine if someone has been exposed to this chemical. The only available medical tests involve physical examination of the nose and throat, chest X-rays, or other tests to identify damage to the respiratory tract. However, these tests are not specific for this chemical and can only be used after damage has occurred.

Has the federal government made recommendations to protect human health?

The EPA recommends that levels in lakes and streams should be limited to 0.0000038 parts per billion parts of water (0.0000038 ppb) to prevent possible health effects from drink-

ing water or eating fish contaminated with bis(chloromethyl) ether. Any release to the environment greater than 10 pounds of bis(chloromethyl) ether must be reported to the EPA.

The Occupational Safety and Health Administration (OSHA) has set a limit of 1 ppb as the highest acceptable level in workplace air, and strict controls have been established to minimize exposure to this chemical.

The federal recommendations have been updated as of July 1999.

Glossary

Carcinogen: A substance that can 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.

Polymer: Chemical compounds consisting of repeating structural units.

ppb: Parts per billion.

Tumor: An abnormal mass of tissue.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1989. Toxicological profile for bis(chloromethyl) 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 F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. 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.

