

This fact sheet answers the most frequently asked health questions (FAQs) about hexachlorobutadiene. 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. This information is important 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.

SUMMARY: Most exposure to hexachlorobutadiene comes from breathing it in workplace air. People living near hazardous waste sites may be exposed to it by breathing air or by drinking contaminated water. Animal studies suggest that hexachlorobutadiene can damage the kidneys and liver and may cause kidney tumors. This chemical has been found in at least 47 of 1,416 National Priorities List sites identified by the Environmental Protection Agency.

What is hexachlorobutadiene?

(Pronounced hĕk'sə klôr' ō byōō'tə-dī'ēn')

Hexachlorobutadiene is a colorless liquid with a turpentine-like odor. It is also called perchlorobutadiene. Hexachlorobutadiene is not found naturally in the environment. It is formed when other chemicals are made.

Most hexachlorobutadiene used commercially in the United States is imported from Germany. It is mainly used to make rubber compounds. It is also used as a solvent, and to make lubricants, in gyroscopes, as a heat transfer liquid, and as a hydraulic fluid.

What happens to hexachlorobutadiene when it enters the environment?

- Hexachlorobutadiene is released to the environment mainly from its disposal following industrial uses.
- In air, half of it may be broken down to other chemicals within 60 days.
- In water, half of it may be broken down to other chemicals within about 30 days.
- Hexachlorobutadiene appears to readily break down in soil.
- Hexachlorobutadiene can accumulate in fish and shellfish.

How might I be exposed to hexachlorobutadiene?

- Working in industries that make or use hexachlorobutadiene.
- Breathing air around hazardous waste sites where it has been disposed of.
- Drinking water contaminated with hexachlorobutadiene.
- Eating fish or other foods contaminated with it.

How can hexachlorobutadiene affect my health?

There are no studies that have looked at the effects of hexachlorobutadiene in people. All of our information has come from studies in animals.

Studies in mice have shown irritation of the nose when large amounts were breathed over a short time. The only other effect noted in animals from breathing hexachlorobutadiene was a reduction in the body weights of fetuses when their mothers breathed high levels of the chemical.

There are no studies which looked at animals breathing low levels of hexachlorobutadiene over a long time.

Rats and mice that drank low levels of hexachlorobutadiene over both short and long periods had kidney and

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

liver damage. No effects on reproduction or on the developing fetuses were seen when rats and mice drank hexachlorobutadiene.

Studies in rabbits found kidney and liver damage from contact with the chemical on the skin for a short time.

How likely is hexachlorobutadiene to cause cancer?

The Environmental Protection Agency (EPA) has determined that hexachlorobutadiene is a possible human carcinogen.

An animal study found kidney tumors in rats exposed to low levels of hexachlorobutadiene. It is not known whether it may also cause cancer in people.

Is there a medical test to show whether I've been exposed to hexachlorobutadiene?

Tests are available that measure levels of hexachlorobutadiene and its breakdown products in urine or fat. However, these tests must be performed within several days after exposure because hexachlorobutadiene leaves the body fairly quickly.

These tests are not usually performed in most doctors' offices because special equipment is needed to conduct them. In addition, these tests cannot determine if adverse health effects will occur from the exposure to hexachlorobutadiene.

Has the federal government made recommendations to protect human health?

EPA has recommended guidelines for exposure to hexachlorobutadiene in drinking water. EPA recommends

that exposures in children should not exceed 0.3 milligrams per liter (mg/L) for 10-day periods or more than 0.1 mg/L for longer periods (7 years). Adults should not be exposed to more than 0.4 mg/L for longer periods (7 years).

EPA requires that discharges or accidental spills into the environment of 1 pound or more of hexachlorobutadiene be reported.

The National Institute for Occupational Safety and Health (NIOSH) has recommended an occupational exposure limit of 0.02 parts hexachlorobutadiene per million parts in air (0.02 ppm) for an 8-hour workday over a 40-hour workweek.

The American Conference of Governmental Industrial Hygienists (ACGIH) has established the same guidelines as NIOSH for the workplace.

These agencies advise avoiding eye and skin contact because this may be a route of significant exposure.

Glossary

Carcinogen: A substance that can cause cancer.

Long time: Lasting one year or longer.

ppm: Parts per million.

Short time: Lasting 14 days or less.

Solvent: A substance that dissolves another substance.

Tumor: An abnormal mass of tissue.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1992. Toxicological profile for hexachlorobutadiene. 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.

