

This fact sheet answers the most frequently asked health questions (FAQs) about hexachlorobenzene. For more information, call the CDC Information Center at 1-800-232-4636. 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:** Exposure to hexachlorobenzene occurs mainly from eating low levels in contaminated food. Much lower exposures can occur from drinking water and breathing air contaminated with hexachlorobenzene. Liver disease is the main adverse health effect caused by high levels of exposure to hexachlorobenzene. Hexachlorobenzene has been found in at least 113 of the 1,699 National Priorities List sites identified by the Environmental Protection Agency (EPA).

## What is hexachlorobenzene?

Hexachlorobenzene is a fungicide that was used in the United States until 1984. It has not been commercially produced in the United States since the late 1970s.

Hexachlorobenzene is a white crystalline solid that does not occur naturally in the environment.

Although not currently manufactured in the United States, it is formed as a waste product during the manufacture of other chemicals such as trichloroethylene and tetrachloroethylene, and is a contaminant in some pesticides, such as pentachloronitrobenzene and pentachlorophenol. Small amounts can also be produced during combustion of municipal waste.

## What happens to hexachlorobenzene when it enters the environment?

- Hexachlorobenzene is very slow to breakdown in air and is subject to long-range transport in the atmosphere.
- It does not dissolve easily in water. Once in water, it binds to sediments and settles to the bottom.
- Half of the hexachlorobenzene detected in surface water will disappear in 3–6 years.
- Hexachlorobenzene sticks strongly to soil and can be slowly degraded by microorganisms. Half the hexachlorobenzene in soil will disappear in 3–6 years.
- Hexachlorobenzene is highly bioaccumulated by animals that live in hexachlorobenzene-contaminated water.

## How might I be exposed to hexachlorobenzene?

- The main route of exposure for the general public is from the ingestion of food, typically low levels.
- Higher exposure may occur by via contaminated food, such as consumption of fish from contaminated water, and the ingestion of contaminated breast milk for infants.
- Breathing low levels in contaminated air.
- Eating or touching contaminated soil.
- Working in a factory that uses or produces it as a by-product.

## How can hexachlorobenzene affect my health?

Brief exposure to very high levels of hexachlorobenzene may cause adverse effects on the nervous system such as weakness, tremors, and convulsions; skin sores; and liver and thyroid effects.

Long-term exposure can cause damage to the liver and reproductive system and can cause developmental effects.

Because hexachlorobenzene accumulates in body fat (including breast tissue) where it can remain for long periods, long-term exposure can result in a build-up of hexachlorobenzene in the body. Therefore, long-term exposure may be more serious than acute or short-term exposure.

# Hexachlorobenzene

CAS # 118-74-1

## How likely is hexachlorobenzene to cause cancer?

Studies in animals suggest that eating food with hexachlorobenzene for a long time can cause cancer of the liver, kidney, and thyroid. There is no strong evidence that hexachlorobenzene causes cancer in people.

The U.S. Department of Health and Human Services (DHHS) considers hexachlorobenzene as reasonably anticipated to be a human carcinogen. EPA has indicated that hexachlorobenzene is a probable human carcinogen. The International Agency for Research on Cancer (IARC) says that hexachlorobenzene is possibly carcinogenic to humans.

## How can hexachlorobenzene affect children?

Infants and young children appeared to be especially sensitive to the effects of very high levels of hexachlorobenzene in the Turkish bread poisoning epidemic during the 1950s.

Breast-fed infants of mothers known to have eaten bread contaminated with hexachlorobenzene developed a disease that produced skin lesions known as "pink sore." Other symptoms were weakness and convulsions. Many of the sickened children died from this disease. Young children older than 2 years of age did not get pink sore, but they developed numerous skin, nervous system, and bone abnormalities later in life.

## How can families reduce the risk of exposure to hexachlorobenzene?

- The main way people are exposed to hexachlorobenzene is through food, especially fatty food. Therefore, eating less fatty food may reduce the risk of exposure to hexachlorobenzene.
- If groundwater or soil near where you live is contaminated with hexachlorobenzene, substitute cleaner sources of water and limit contact with soil.

- Avoid consuming produce grown in contaminated soil.
- Prevent your children from eating dirt and discourage them from putting objects in their mouths.
- Make sure children wash their hands frequently and before eating.

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

Blood, breast milk, urine, and feces may be tested to determine if you have ever been exposed to hexachlorobenzene. Because hexachlorobenzene can collect and remain in breast milk, the test for this substance can tell that you have been exposed, but not when or to how much. The levels in blood, urine, and feces indicate more recent exposure, but will not tell whether harmful effects will occur. The tests are not routinely available at the doctor's office because they require special equipment.

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

EPA has determined that exposures to hexachlorobenzene in drinking water of adults or children (10 years old or younger) at a concentrations less or equal to 0.05 milligrams per liter (0.05 mg/L) for up to 10 days or adults at less or equal to 0.03 mg/L for a lifetime (assuming 100% of hexachlorobenzene exposure is from drinking water) are not expected to cause any adverse non-cancer health effects.

## References

This ToxFaq<sup>TM</sup> information is taken from the 2015 Toxicological Profile for Hexachlorobenzene produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

## Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30333-4027.

Phone: 1-800-232-4636.

ToxFaq<sup>TM</sup> on the web: [www.atsdr.cdc.gov/toxFAQs](http://www.atsdr.cdc.gov/toxFAQs)

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.