



# HEPTACHLOR and HEPTACHLOR EPOXIDE

CAS # 76-44-8 and 1024-57-3

Division of Toxicology and Environmental Medicine ToxFAQs™

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This fact sheet answers the most frequently asked health questions (FAQs) about heptachlor and heptachlor epoxide. For more information, call the ATSDR 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 is important you understand this information because these substances 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:** The primary exposure to heptachlor and heptachlor epoxide is from contaminated foods and milk. Little is known about their health effects in humans. At high levels, they may cause damage to your liver and nervous system. Exposure of animals during gestation and infancy can result in damage to the nervous system and the immune systems. Heptachlor and heptachlor epoxide have been found in at least 210 and 200, respectively, of the 1,684 National Priority List sites identified by the Environmental Protection Agency (EPA).

## What are heptachlor and heptachlor epoxide?

Heptachlor is a manufactured chemical and doesn't occur naturally. Pure heptachlor is a white powder that smells like camphor (mothballs). The less pure grade is tan. Trade names include Heptagran®, Basaklor®, Drinox®, Soleptax®, Termide®, Gold Crest H-60®, and Velsicol 104®.

Heptachlor was used extensively in the past for killing insects in homes, buildings, and on food crops. These uses stopped in 1988. Currently it can only be used for fire ant control in underground power transformers.

Heptachlor epoxide is also a white powder. Bacteria and animals break down heptachlor to form heptachlor epoxide. The epoxide is more likely to be found in the environment than heptachlor.

## What happens to heptachlor and heptachlor epoxide when they enter the environment?

- ☐ Heptachlor doesn't dissolve easily in water; heptachlor epoxide dissolves more easily
- ☐ They stick strongly to soil particles and evaporate slowly to air.
- ☐ Heptachlor epoxide can stay in the soil and water for many years.

☐ Plants can take up heptachlor from the soil. Levels of heptachlor and heptachlor epoxide can build up in the tissues of fish and cattle.

## How might I be exposed to heptachlor or heptachlor epoxide?

- ☐ Eating fish, dairy products, and fatty meats from animals exposed to heptachlor in their food.
- ☐ Breast milk from mothers who had high exposures can expose breastfed infants.
- ☐ Drinking water, breathing air, or touching soil at waste sites that contain these substances.

## How can heptachlor and heptachlor epoxide affect my health?

There is no reliable information on health effects in humans. Liver damage, excitability, and decreases in fertility have been observed in animals ingesting heptachlor. The effects are worse when the exposure levels were high or when exposure lasted many weeks.

Although there is very little information on heptachlor epoxide, it is likely that similar effects would also occur after exposure to this compound.

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

**How likely are heptachlor and heptachlor epoxide to cause cancer?**

Lifetime exposure to heptachlor resulted in liver tumors in animals. The International Agency for Research on Cancer (IARC) and the EPA have classified heptachlor as a possible human carcinogen. EPA also considers heptachlor epoxide as a possible human carcinogen.

**How can heptachlor and heptachlor epoxide affect children?**

Animals exposed to heptachlor during gestation and infancy may be very sensitive to heptachlor and heptachlor epoxide. Changes in nervous system and immune function were found in these animals. Exposure to higher doses of heptachlor in animals can also result in decreases in body weight and death in newborn animals.

**How can families reduce the risks of exposure to heptachlor and heptachlor epoxide?**

- ☐ People who live in homes where heptachlor was used for termite control or on farms where heptachlor was used on crops may have a higher risk of exposure through contaminated crops, soil, water, and air. To avoid exposure from contaminated soil, you should discourage your children from eating dirt. Make sure they wash their hands frequently and before eating. Discourage children from putting their hands in their mouths or other hand-to-mouth activities.
- ☐ Heptachlor and heptachlor epoxide are also persistent in food and milk. Eating fish from contaminated water can increase exposure to heptachlor. Do not fish or eat fish from contaminated water. Local fishing advisories can tell you if the water is contaminated.

**Is there a medical test to determine whether I've been exposed to heptachlor or heptachlor epoxide?**

Laboratory tests can detect heptachlor and heptachlor epoxide in blood, fat, breast milk, and body tissues after exposure to high levels of these chemicals. These tests are

not commonly available at your doctor's office. Most often, the test for heptachlor epoxide is used because heptachlor is quickly changed into heptachlor epoxide in your body. Blood samples are used most often because they are easy to collect. These tests are specific for heptachlor and heptachlor epoxide.

Methods for measuring heptachlor and heptachlor epoxide in body fat are more precise and can detect lower levels than tests that measure levels in blood. If heptachlor or heptachlor epoxide is found in your blood or fat, it is not possible to tell when you were exposed to these chemicals or if harmful health effects will occur.

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

The EPA requires that drinking water should not contain more than 0.0004 milligrams heptachlor per liter of water (0.0004 mg/L) and 0.0002 mg heptachlor epoxide per liter of water (0.0002 mg/L).

The FDA controls the amount of heptachlor and heptachlor epoxide on raw food crops and on edible seafood. The limit on food crops is 0.01 parts heptachlor per million parts food (0.01 ppm). The limit in milk is 0.1 parts per million of milk fat. The limit on edible seafood is 0.3 ppm.

The Occupational Safety and Health Administration (OSHA) has set a limit of 0.5 milligrams heptachlor per cubic meter of workplace air (0.5 mg/m<sup>3</sup>) for 8 hour shifts and 40 hour work weeks.

**References**

Agency for Toxic Substances and Disease Registry (ATSDR). 2007. Toxicological Profile for Heptachlor and Heptachlor Epoxide (Update). Atlanta, GA: U.S. Department of Public 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 and Environmental Medicine, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-800-232-4636, 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.

