

This fact sheet answers the most frequently asked health questions (FAQs) about heptachlor/heptachlor epoxide. 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.

**SUMMARY:** Exposure to heptachlor and heptachlor epoxide happens mostly from eating contaminated foods and milk, or skin contact with contaminated soil. At high levels, they can cause damage to your nervous system. Heptachlor and heptachlor epoxide have been found in at least 129 and 87 sites, respectively, of 1,300 National Priorities List sites identified by the Environmental Protection Agency (EPA).

### What are heptachlor/heptachlor epoxide?

(Pronounced hĕp'tĕ-klŏr/hĕp'tĕ-klŏr ě-pŏk/sĭd)

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®, and Velsicol 104®.

Heptachlor was used extensively in the past for killing insects in homes, buildings, and on food crops, especially corn. Use slowed in the 1970s and stopped in 1988.

Heptachlor epoxide is also a white powder and is a break-down product of heptachlor. 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.
- Animals change heptachlor to the epoxide.
- Plants can take up heptachlor from the soil.
- Levels build up in the tissues of fish and cattle.

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

- Eating crops grown in soil that contains heptachlor.
- Eating fish, dairy products, and fatty meats from animals exposed to heptachlor in their food.
- Breathing air, drinking water, or skin contact with soil near waste sites or landfills.
- Breast milk (from mothers who had high exposures).

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

Heptachlor and heptachlor epoxide are clearly toxic to humans and animals and can damage the nervous system. There are some human data on brief exposures to high levels. A few reports showed that people who accidentally swallowed

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pesticides containing heptachlor, or who spilled pesticides on their clothes became dizzy, confused, or had convulsions.

Most of what we know about the health effects of these pesticides comes from studies on mice and rats fed heptachlor and heptachlor epoxide in the food or water. Very high levels for short periods produce serious liver problems. Mice had trouble walking and rats developed tremors. High levels of heptachlor in the feed for several weeks damaged the livers of rats and the livers and adrenal glands of mice.

We do not know if heptachlor or the epoxide affect the ability of men or women to have children. Animals that ate food containing heptachlor before and/or during pregnancy had smaller litters or were unable to reproduce. Some of the offspring had cataracts and some didn't live long after birth.

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

The International Agency for Research on Cancer (IARC) has determined that heptachlor and heptachlor epoxide are not classifiable as to their carcinogenicity to humans because insufficient data are available to establish a clear assessment.

### **Is there a medical test to show whether I've been exposed to heptachlor and heptachlor epoxide?**

Laboratory tests can measure heptachlor and heptachlor epoxide following exposure to high levels. The blood tests for these chemicals must be done within a short period after exposure.

Levels in fat can be measured for a much longer period after exposure. If heptachlor or heptachlor epoxide are found in your fat, it isn't possible to tell exactly 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 banned the sale of all heptachlor products and restricted the use of heptachlor to the control of fire ants in power transformers. EPA recommends a maximum of 2.78 parts of heptachlor and heptachlor epoxide per trillion parts of drinking water or seafood (2.78 ppt) that you eat each day. For longer exposures, a child should not drink water with greater than 5,000 ppt heptachlor or 150 ppt heptachlor epoxide. Quantities greater than 1 pound of heptachlor or heptachlor epoxide that enter the environment must immediately be reported to the National Response Center.

The Food and Drug Administration (FDA) limits the amount of heptachlor and heptachlor epoxide on raw food crops and on edible seafood to from 0-10 parts per billion (ppb), depending on the type of food product. The limit on edible seafood is 300 ppb, and for the fat of food-producing animals is 200 ppb.

The American Conference of Governmental Industrial Hygienists (ACGIH) and the Occupational Safety and Health Administration (OSHA) recommend a maximum in workplace air over an 8-hour workday for a 40-hour work week of 0.5 milligrams of heptachlor per cubic meter (0.5 mg/m<sup>3</sup>).

### **Glossary**

Carcinogenicity: Ability to cause cancer.

Milligram (mg): One thousandths of a gram.

ppt: Parts per trillion.

ppb: Parts per billion.

### **References**

Agency for Toxic Substances and Disease Registry (ATSDR). 1993. Toxicological profile for heptachlor and heptachlor epoxide. 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.

