

Hexachlorocyclohexanes - ToxFAQs™

What are hexachlorocyclohexanes?

Hexachlorocyclohexanes are a group of man-made chemicals. There are several different types of hexachlorocyclohexanes (such as α -, β -, δ -, and γ - hexachlorocyclohexane). These chemicals are solid at room temperature. They may have a musty smell.



Hexachlorocyclohexanes used to be used as pesticides but are no longer used for this purpose. One type of hexachlorocyclohexane (γ -hexachlorocyclohexane, also known as lindane) is used in some prescription shampoos/lotions to treat lice and scabies.

What happens to hexachlorocyclohexanes in the environment?

Hexachlorocyclohexanes can get into the environment when they are being packaged or used. Most hexachlorocyclohexanes released this way go either into the air or landfills. Small amounts of hexachlorocyclohexanes from shampoos/lotions may get into wastewater from people washing the treatment off.

Rain washes hexachlorocyclohexanes out of the air. Hexachlorocyclohexanes will stick to soil and sediments (the dirt deposits) at the bottom of lakes, streams, and rivers. Low levels of hexachlorocyclohexanes in water, soil, or sediment are broken down and removed from the environment in a few days to weeks by microorganisms (natural types of bacteria).

How can I be exposed to hexachlorocyclohexanes?

Most people are not likely to be exposed to hexachlorocyclohexanes unless they work at a place that packages or uses these chemicals. It is possible that you could be exposed to small amounts of hexachlorocyclohexanes in contaminated soil or water, if you come into contact with old containers of pesticides, or if you are treated for lice or scabies with shampoos/lotions that have hexachlorocyclohexanes in them.

How can hexachlorocyclohexanes affect my health?

Exposure to hexachlorocyclohexanes affects the nervous system. People who were exposed to high levels of hexachlorocyclohexanes by eating them or getting them on their skin experienced tremors, convulsions (spasms), and central nervous system depression (weakness, lack of coordination). Nervous system problems were also seen in animals that breathed or ate large amounts hexachlorocyclohexanes or had them put on their skin.

Most people are not likely to be exposed to hexachlorocyclohexanes.

Animals given high levels of hexachlorocyclohexanes in their air, food or water or exposed to them on their skin developed liver damage. Eating some kinds of hexachlorocyclohexanes (β - and γ - hexachlorocyclohexane) can cause changes in an animal's immune system. Pregnant animals that were fed hexachlorocyclohexanes gave birth to fewer pups and had pups with lower-than-normal weight. In addition, some pregnant animals gave birth to pups with heart changes or to male pups with abnormal reproductive organs. Male animals fed certain hexachlorocyclohexanes for a short period of time had more abnormal sperm, and both male and female animals fed certain hexachlorocyclohexanes had changes in their hormone levels.

Hexachlorocyclohexanes

Can hexachlorocyclohexanes cause cancer?

Some studies have shown that people exposed to hexachlorocyclohexanes for a long time may develop certain types of cancer. However, these people were also exposed to other chemicals at the same time. That makes it hard to tell which chemical may have led to the cancer.

Rats and mice that ate some types of hexachlorocyclohexanes (α -, β -, and γ -hexachlorocyclohexane) for a long period of time developed liver or lung cancers.

The [U.S. Department of Health and Human Services \(DHHS\)](#) considers hexachlorocyclohexanes to be reasonably anticipated to be a human carcinogen (causing cancer in people).

The [U.S. Environmental Protection Agency \(EPA\)](#) has classified α -hexachlorocyclohexane as probably carcinogenic to humans. The EPA has classified β -hexachlorocyclohexane as possibly carcinogenic to humans.

The [International Agency for Research on Cancer \(IARC\)](#) has classified γ -hexachlorocyclohexane as carcinogenic to humans.

Can I get a medical test to check for hexachlorocyclohexanes?

Hexachlorocyclohexanes can be measured in blood, urine, and hair. In addition, breakdown products of hexachlorocyclohexanes can show up in urine tests. However, there are several other chemicals that also have the same breakdown products. Tests of blood, urine, and hair cannot tell the exact amount you were exposed to or predict whether you will have health problems. If you think you have been exposed to hexachlorocyclohexanes, call your doctor, nurse, or poison control center.

How can I protect myself and my family from hexachlorocyclohexanes?

Most people don't need to take any special steps to avoid hexachlorocyclohexanes in their daily lives. Keep children from playing in areas where pesticides are used and near hazardous waste sites to avoid coming in contact with these chemicals. Always check the labels on household products and store them safely in their original containers away from children. If you use products that contain hexachlorocyclohexanes (such as shampoos to treat lice) always follow the directions carefully or consider using other treatments that do not contain hexachlorocyclohexane.

Follow your state's health advisories that tell you about whether it is okay to eat fish or wildlife caught in contaminated areas.

For more information:

Call **CDC-INFO** at 1-800-232-4636, or submit your question online at <https://wwwn.cdc.gov/dcs/ContactUs/Form>

Go to ATSDR's Toxicological Profile for Hexachlorocyclohexanes: <https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=754&tid=138>

Go to ATSDR's Toxic Substances Portal: <https://wwwn.cdc.gov/TSP/index.aspx>

Find & contact your ATSDR Regional Representative at http://www.atsdr.cdc.gov/DRO/dro_org.html

