Hexachlorobenzene

CAS Number: 118-74-1

What is hexachlorobenzene?

Hexachlorobenzene, also known as HCB, is a white crystal-looking solid. It is not found naturally in the environment but is developed as a by-product, a result of making other chemicals.

What is HCB used for?

Until 1965, HCB was mostly used as a pesticide to protect against fungus. It was also used to make fireworks, ammunition, and synthetic rubber. However, using and intentionally making HCB is no longer allowed in the United States.

How can HCB enter and leave your body?

HCB can enter your body after you eat HCB-contaminated food, breathe HCB-contaminated air, or it can be absorbed through the skin. Within just a few hours of entering your body, HCB can spread to other tissues in the body. HCB will stay in the body for years, especially in fat tissues. When it does leave the body, it has been found in feces and in urine.

How can you be exposed to HCB?

You can be exposed to HCB if you breathe small HCB particles in the air or dust, if you work in an industry that makes HCB as a by-product or an industry where HCB is used or a waste dump where it is disposed.

You can be exposed to HCB if you eat or drink HCB-contaminated food (fish, meat, poultry) or liquids (milk). You can also be exposed if your skin comes in contact with HCB. Babies that are nursing can be exposed to HCB through their mother's breast milk.

What are the health effects of exposure to HCB?

Not much is known about the health effects caused from breathing HCB or from skin contact. However, some cases of a skin disorder called porphyria were reported after people in Turkey ate bread that was made using HCB contaminated-grain.

Evidence exists that HCB is toxic to young children. In fact, animal studies and experiments have confirmed the danger and have shown that HCB can decrease the survival rates for young children.

Other animal studies show that eating HCB-contaminated food over a long period of time can harm the liver, immune system, kidneys, and blood. It can cause the skin to erupt (break) and change in coloring. Some studies show that eating enough HCB over a long period of time can cause liver or thyroid cancer.

The U.S. Department of Health and Human Services determined that HCB is a probable or suspected carcinogen (substance that causes cancer).

What levels of exposure have resulted in harmful health effects?

The level of exposure resulting in harmful health effects is unknown.

However, animal studies suggest that humans who eat food containing 0.17 parts per million (ppm) of HCB for over 15 weeks or 0.029 ppm for 130 weeks may experience health effects. No information is available on short-term exposure.

When exposed to 769 ppm of HCB-contaminated food over 10 days (short-term exposure), the off-spring of mice developed abnormally.

The long-term exposure of different animals (rats and monkeys) to different amounts of HCB-contaminated food ranging from 4 ppm to 1,600 ppm affected the immune system and liver in rats, decreased the survival in new born rats and caused lethargy, ataxia in monkeys. Ataxia is the loss of muscular coordination and control.

Where can you get more information?

Contact your state health or environmental department, or:

Agency for Toxic Substances and Disease Registry
Division of Toxicology
1600 Clifton Road, N.E., E-29
Atlanta, Georgia 30333

References

1. Agency for Toxic Substances and Disease Registry (ATSDR). *Public Health Statement for Hexachlorobenzene*. Atlanta, GA: U.S. Department of Health and Human Services, 1990.
2. Agency for Toxic Substances and Disease Registry (ATSDR). *Toxicological Profile for Hexachlorobenzene*. Atlanta, GA: U.S. Department of Health and Human Services, 1997.
3. Reigart, Routt J. and Roberts, James R. Medical University of South Carolina. *Recognition and Management of Pesticide Poisonings.* Fifth ed. Washington, D.C.: U.S. Environmental Protection Agency, Office of Pesticide Programs, 1999.