

This fact sheet answers the most frequently asked health questions (FAQs) about 1,1-dichloroethene. 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 1,1-dichloroethene occurs mainly in the workplace. Breathing high levels of 1,1-dichloroethene can affect the liver, kidney, and central nervous system. This chemical has been found in at least 515 of 1,416 National Priorities List sites identified by the Environmental Protection Agency.

What is 1,1-dichloroethene?

(Pronounced 1,1-dī'klôr'ō ēth'ēn)

1,1-Dichloroethene is an industrial chemical that is not found naturally in the environment. It is a colorless liquid with a mild, sweet smell. It is also called vinylidene chloride.

1,1-Dichloroethene is used to make certain plastics, such as flexible films like food wrap, and in packaging materials. It is also used to make flame retardant coatings for fiber and carpet backings, and in piping, coating for steel pipes, and in adhesive applications.

What happens to 1,1-dichloroethene when it enters the environment?

- 1,1-Dichloroethene enters the environment from industries that make or use it.
- 1,1-Dichloroethene evaporates very quickly from water and soil to the air.
- In the air, it takes about 4 days for it to break down.
- 1,1-Dichloroethene breaks down very slowly in water.
- It does not accumulate very much in fish or birds.
- In soil, 1,1-dichloroethene is slowly transformed to other less harmful chemicals.

How might I be exposed to 1,1-dichloroethene?

- Workers may be exposed in industries that make or use 1,1-dichloroethene (these industries are mainly in Texas and Louisiana).
- Food that is wrapped in plastic wrap may contain very low levels of 1,1-dichloroethene. The government controls these levels to prevent harm to your health.
- A small percentage (3%) of the drinking water supplies may contain very low levels of 1,1-dichloroethene.
- Air near factories that make or use 1,1-dichloroethene and air near hazardous waste sites may contain low levels of it.

How can 1,1-dichloroethene affect my health?

The main effect from breathing high levels of 1,1-dichloroethene is on the central nervous system. Some people lost their breath and fainted after breathing high levels of the chemical.

Breathing lower levels of 1,1-dichloroethene in air for a long time may damage your nervous system, liver, and lungs. Workers exposed to 1,1-dichloroethene have reported a loss in liver function, but other chemicals were present.

ATSDR Internet home page via WWW is <http://www.atsdr.cdc.gov/toxfaq.html>

Animals that breathed high levels of 1,1-dichloroethene had damaged livers, kidneys, and lungs. The offspring of some of the animals had a higher number of birth defects. We do not know if birth defects occur when people are exposed to 1,1-dichloroethene.

Animals that ingested high levels of 1,1-dichloroethene had damaged livers, kidneys, and lungs. There were no birth defects in animals that ingested the chemical.

Spilling 1,1-dichloroethene on your skin or in your eyes can cause irritation.

How likely is 1,1-dichloroethene to cause cancer?

The Environmental Protection Agency (EPA) has determined that 1,1-dichloroethene is a possible human carcinogen.

Studies on workers who breathed 1,1-dichloroethene have not shown an increase in cancer. These studies, however, are not conclusive because of the small numbers of workers and the short time studied.

Animal studies have shown mixed results. Several studies reported an increase in tumors in rats and mice, and other studies reported no such effects.

Is there a medical test to show whether I've been exposed to 1,1-dichloroethene?

Tests are available to measure levels of 1,1-dichloroethene in breath, urine, and body tissues. These tests are not usually available in your doctor's office. However, a sample taken in your doctor's office can be sent to a special laboratory if necessary.

Because 1,1-dichloroethene leaves the body fairly quickly, these methods are useful only for finding exposures that have occurred within the last few days. These tests can't tell you if adverse health effects will occur from exposure to 1,1-dichloroethene.

Has the federal government made recommendations to protect human health?

The EPA has set a limit in drinking water of 0.007 parts of 1,1-dichloroethene per million parts of drinking water (0.007 ppm). EPA requires that discharges or spills into the environment of 5,000 pounds or more of 1,1-dichloroethene be reported.

The Occupational Safety and Health Administration (OSHA) has set an occupational exposure limit of 1 ppm of 1,1-dichloroethene in workplace air for an 8-hour workday, 40-hour workweek.

The National Institute for Occupational Safety and Health (NIOSH) currently recommends that workers breathe as little 1,1-dichloroethene as possible.

Glossary

Carcinogen: A substance that can cause cancer.

CAS: Chemical Abstracts Service.

Ingesting: Taking food or drink into your body.

ppm: Parts per million.

Tumor: An abnormal mass of tissue.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1994. Toxicological profile for 1,1-dichloroethene. 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.

