

What is tetrachloroethylene?

Tetrachloroethylene is a synthetic chemical that is widely used for dry cleaning fabrics and for metal-degreasing operations. It is a nonflammable liquid at room temperature. It evaporates easily into the air and has a sharp, sweet odor. Most people can smell tetrachloroethylene when it is present in the air at a level of 1 part per million parts (ppm) of air or more, although some can smell it at even lower levels. Other names for tetrachloroethylene include perchloroethylene, PCE, and PERC.

Who is exposed to tetrachloroethylene?

Most exposures to tetrachloroethylene occur in the workplace through breathing vapor and direct contact with the liquid. More information about occupational exposure to tetrachloroethylene, and safe work practices can be found at www.osha.gov. Exposure to the general public typically occurs from environmental sources (contaminated air and water) and from consumer products. Products that may contain tetrachloroethylene include water repellents, silicone lubricants, fabric finishers, spot removers, adhesives, and wood cleaners. Common environmental levels of tetrachloroethylene (called background levels) are several thousand times lower than levels found in some workplaces. The air close to dry cleaning shops and tetrachloroethylene waste sites has levels of tetrachloroethylene higher than background levels.

How can tetrachloroethylene affect my health?

Tetrachloroethylene has been used medicinally as a general anesthetic and at high concentrations is known to produce loss of consciousness. When concentrations in air are high—particularly in closed, poorly ventilated areas—acute exposures can cause dizziness, headache, sleepiness, confusion, nausea, difficulty in speaking and walking, unconsciousness, and death.

Results of animal studies, conducted with tetrachloroethylene at concentrations higher than those of typical exposures, have found that tetrachloroethylene can cause liver and kidney damage. Animal studies have also shown that offspring of pregnant animals exposed to excessive levels of tetrachloroethylene can develop behavior problems.

How likely is tetrachloroethylene to cause cancer?

Although it has not been shown to cause cancer in people, the U.S. Department of Health and Human Services (DHHS) has determined that tetrachloroethylene may reasonably be anticipated to be a human carcinogen. The International Agency for Research on Cancer (IARC) has determined that tetrachloroethylene is a probable human carcinogen. The U.S. Environmental Protection Agency (EPA) has classified tetrachloroethylene as likely to be carcinogenic in humans by all routes of exposure.

How does tetrachloroethylene affect children?

It is not known whether children are more susceptible to the effects of tetrachloroethylene exposure than adults.

Is there a medical test to determine whether I have been exposed to tetrachloroethylene?

Tetrachloroethylene can be detected in human blood and breath. Breakdown products of tetrachloroethylene can also be detected in the blood and urine of exposed individuals. Because exposure to other chemicals can produce the same breakdown products in the urine and blood, the tests for breakdown products cannot determine if you have been exposed only to tetrachloroethylene. Test results cannot determine the extent to which a person has been exposed to tetrachloroethylene, and cannot predict adverse health effects.

How can I reduce my exposure to tetrachloroethylene?

If you are concerned about tetrachloroethylene in drinking water, use bottled water and contact your local water authorities for advice. Prevent children from playing in dirt near contaminated areas. Tetrachloroethylene is used as a scouring solvent. If you use these products, follow the instructions on the product label to minimize exposure.

Has the federal government made recommendations to protect human health?

The Occupational Safety and Health Administration (OSHA) permissible exposure limit is 100 ppm tetrachloroethylene in workplace air. This limit is based on an eight-hour time-weighted average for a 40-hour week. EPA sets the standards for public drinking water. EPA's maximum contaminant level (MCL) for tetrachloroethylene is 0.005 micrograms per liter (mg/L) in public drinking water. Consuming water with levels of tetrachloroethylene consistently above the MCL over a long period of time may increase the risk of adverse health effects.

Where can I get more information about tetrachloroethylene?

- If you have concerns about tetrachloroethylene, contact your healthcare provider.
- Call your local health department. A directory of local health departments is located at <https://www.vdh.virginia.gov/local-health-districts/>. Contact the Virginia Department of Health at (804) 864-8127 or at toxicology@vdh.virginia.gov.
- Visit the Agency for Toxic Substances and Disease Registry website at <https://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=48>.

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