



TRICHLOROETHYLENE

What is Trichloroethylene?

Trichloroethylene is a man made chemical. At room temperature, it is a colorless liquid with an odor like ether or chloroform. Trichloroethylene evaporates very quickly. Originally developed as an anesthetic for surgery, trichloroethylene is now used as an industrial cleaner (solvent) to remove grease from metal parts. It is used as a solvent in other ways, too. Trichloroethylene is also often used in making other chemicals. Trichloroethylene is commonly called TCE.



TCE is used in many consumer products. Examples include typewriter correction fluid, paint removers, paint strippers, adhesive glues, spot removers, cleaning fluids for rugs, and metal cleaners.



What happens to trichloroethylene in the environment?

Industrial processes are the main sources of TCE in the environment. It is commonly found in air and water. Once it is released into the air, TCE will break down within a few weeks. TCE breaks down more slowly in surface water and soil than in air, and it can pass through the soil into underground water.

How are people exposed to trichloroethylene?

Most exposures to TCE occur in the workplace. The general public is exposed to no or very low levels of TCE.



Exposure of the general population to TCE is mainly through breathing industrial emissions, drinking water that contains TCE, or using consumer products containing low levels.

TCE does not accumulate or build up in the cells of plants or animals, so it is not typically found in our food chain. For most people, the level of exposure to TCE through food, beverages, or drinking water is very low. Higher exposure can result from drinking well water containing TCE, usually as a result of landfills and waste sites containing TCE.

If you use city or municipal drinking water, then exposure to TCE in your water should be low. The United States Environmental Protection Agency (EPA) as well as State and local governments regulate and monitor these public water supplies to ensure they are safe to drink. EPA has established a drinking water standard of 5 parts per billion (ppb) of TCE.

Can trichloroethylene affect my health?

The health effects from TCE differ depending on the amount of TCE to which a person is exposed and how long the exposure lasts. Levels of TCE in the normal environment are generally well below levels of those in the workplace. Health effects similar to those described below are unlikely to be observed in the general public.

Dizziness, headache, slowed reaction time, sleepiness, and facial numbness have occurred in workers breathing TCE or in people who use TCE-containing products in small, poorly ventilated areas. Concentrations causing these effects are higher than the allowable occupational exposure level (50 parts per million). Irritation of the eyes, nose, and throat also occur under these conditions. These effects on the central nervous system have also been seen in people who accidentally drank several ounces of undiluted TCE. More severe effects on the central nervous system, such as unconsciousness and possibly death, can occur from drinking or breathing higher levels of TCE. In general, the effects that result from one or several exposures to TCE disappear when exposure ends. Levels of TCE in the normal environment are generally well below levels of those in the workplace.

Studies in animals show that ingesting or breathing levels of TCE that are higher than typical environmental levels can produce nervous system changes; liver and kidney damage; effects on the blood; tumors of the liver, kidney, lung, and male sex organs; and possibly cancer of the tissues that form the white blood cells (leukemia). Results of a few studies in some pregnant animals exposed to TCE in air or food showed effects in unborn animals or in newborns. None of these effects have been definitely shown to occur in humans.



The EPA is currently reevaluating the carcinogenic classification for TCE. The International Agency for Research on Cancer has determined that TCE is a probable human carcinogen based on limited human data and sufficient data in experimental animals. The American Conference of Governmental Industrial Hygienists have determined that TCE is not suspected as a human carcinogen.

For more information: If you have questions regarding the information in this fact sheet, please contact the Navy Environmental Health Center, Environmental Programs Directorate at (757) 953-0932.