



Chemicals in Private Drinking Water Wells Fact Sheet Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of tetrachloroethylene typically found in drinking water wells.

Tetrachloroethylene

What is tetrachloroethylene?

Tetrachloroethylene or perchloroethylene (PCE) is a synthetic, nonflammable liquid. It evaporates easily into the air and has a sharp, sweet odor. Other names for it include tetrachloroethene or perc.

Dry cleaners use PCE on fabrics. PCE also de-greases metals. Industry uses PCE to make other chemicals or consumer products.

How might exposure to PCE in drinking water occur?

- Drinking contaminated well water
- Living near uncontrolled hazardous waste sites containing PCE

What is the standard for PCE in drinking water?

The Florida Department of Environmental Protection drinking water standard for PCE is 3 micrograms per liter of water (3 ug/L). There is no required sampling of private drinking water wells for it.

How can PCE affect my health?

To protect health, drinking water standards are set at very low levels. Drinking water every day at or below the standard for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a “no-effect level” or level that does not cause illness. Then, to be on the safe side, scientists typically set standards hundreds or thousands of times less than the “no-effect level.” Therefore, drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. The risk of illness, however, increases as the level of PCE increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing)?

How chemical exposures may affect someone can range widely from one person to the next. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to affect someone, in general?

The health effects of drinking water or breathing air with low levels of PCE are not well known.

How likely is PCE to cause cancer?

It is unknown if PCE causes cancer in humans. The U.S. Department of Health and Human Services anticipates it may cause cancer. Studies show links with PCE to cause liver tumors in mice and kidney tumors in male rats. The drinking water standard is set to protect against the risk of cancer.

Is there a medical test for (chemical) exposures?

Tests of exhaled air can show levels of PCE in someone's body. Stored in body fat, it slowly releases through breathing, so tests can show it for weeks after an exposure to high levels. There is also a blood test for it and trichloroacetic acid, a breakdown product of PCE. These tests are simple. These tests are not available in most doctors' offices, but special laboratories with the right equipment can perform them.

Is it safe to keep drinking water with PCE in it?

Levels of PCE less than the drinking water standard of 3 ug/L are not likely to cause illness. Drinking water with levels slightly above the drinking water standard for a short time does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information: Please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposures in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for PCE at www.atsdr.cdc.gov/toxfaqs/tfacts18.pdf