



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 trichloroethylene typically found in drinking water wells.

Trichloroethylene (TCE)

What is trichloroethylene?

Trichloroethylene (TCE) is a synthetic, colorless liquid. It has a somewhat sweet odor and a sweet, burning taste. Trichloroethene is another term for it.

Industry mainly uses TCE to remove grease from metal parts. Some types of paint and spot removers contain TCE. During production, usage and disposal, TCE can get into groundwater and surface water.

How might exposure to TCE in drinking water occur?

- Drinking contaminated well water
- Living near uncontrolled hazardous waste sites containing TCE products
- Breathing vapors released in a home's indoor air from water with TCE in it

What is the standard for TCE in drinking water?

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

How can TCE affect my health?

To protect health, drinking water standards are set at very low levels. Drinking water every day at or below the drinking water 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 drinking water 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 TCE 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? (Did someone eat, drink or breathe the chemical into their body?)

How chemical exposures may affect someone can range widely from one person to the next. The drinking water standard is set to protect the most sensitive individuals. 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 effect someone, in general?

Drinking water with concentrations of TCE well above the drinking water standard for long periods may cause liver and kidney damage, impaired immune system function, and impaired fetal development in pregnant women. The extent of some of these effects, however, is not clear. Breathing TCE from the household use of water with concentrations well above the drinking water standard may cause headaches, lung irritation, dizziness, poor coordination, and difficulty concentrating.

How likely is TCE to cause cancer?

It is unknown if TCE causes cancer in humans. The National Toxicology Program anticipates that TCE may cause cancer in humans. Some studies on animals suggest that high levels of it cause liver, kidney or lung cancer. The drinking water standard is set to protect against the risk of cancer.

Is there a medical test for TCE exposures?

Several tests can show exposure to TCE. A breath test can measure levels of TCE, but only soon after exposure. Blood and urine tests can detect TCE and its breakdown products for up to one week after exposure. However, exposure to similar chemicals can produce the same breakdown products, so the detection is not absolute proof of exposure to TCE.

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

Levels of TCE less than the drinking water standard of 3 ug/L are not likely to cause illness. Drinking water with levels slightly above the 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 exposure to TCE in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for TCE at www.atsdr.cdc.gov/toxfaqs/tfacts19.pdf