



Chemicals in Private Drinking Water Wells Fact Sheet

Florida Department of Health, Division of Environmental Health

This fact sheet discusses possible health risk from exposure to low levels of 1,1-dichloroethene typically found in private drinking water wells.

1,1-Dichloroethene

What is 1,1-dichloroethene?

1,1-dichloroethene (1,1-DCE) is a synthetic liquid. It is sometimes referred to as 1,1-dichloroethylene. 1,1-DCE has a mild, sweet smell similar to chloroform. Nearly all of it is used to make solvents/degreasers, adhesives, produce synthetic fibers, refrigerants, food packaging, and coating resins.

About 90,700 tons per year of 1,1-DCE were produced in the USA during the early 1980s. 1,1-DCE may be released by evaporation during production or in wastewater. It can also be released when used to make plastic wrap, adhesives, and synthetic fiber. It may also exist in groundwater as the result of the breakdown of other similar chemicals.

How might I be exposed to 1,1-dichloroethene in my drinking water?

- Usually found in ground water as breakdown product of closely related chemicals.
- Drinking water may contain 1,1-DCE as a result of improper disposal of wastes.

What is the standard for 1,1-dichloroethene in drinking water?

The Florida Department of Environmental Protection's (DEP) drinking water standard for 1,1-DCE is 7 micrograms per liter (7 ug/L). There is no required sampling of private drinking water wells.

How can 1,1-dichloroethene affect my 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 doesn't cause illness. Then, to be on the safe side, scientists set drinking water standards hundreds or thousands of times less than the "no-effect level." Therefore, drinking water with levels slightly above the drinking standard for a short time period does not significantly increase the risk of illness. The risk of illness, however, increases as the level of chemical 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?)

Health effects are also determined by a number of personal factors. From person to person, how someone is affected by a chemical exposure ranges widely. The drinking water standard is set to protect the most sensitive individuals. Health effects are also determined by a number of personal factors. 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 they to be affected by exposure to a chemical, in general?

Drinking water with levels of 1,1-dichloroethene well above the drinking water standard for extended periods increases the risk of liver and kidney damage.

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

The ability of 1,1-dichloroethene to cause cancer in humans is unknown. The International Agency for Research on Cancer has determined that 1,1-dichloroethene is not classifiable as to its ability to cause cancer in humans. The US Environmental Protection Agency has determined that 1,1-dichloroethene could possibly cause cancer in humans. The drinking water standard is set to protect against the risk of cancer.

Is there a medical test to see if I have been exposed to 1,1-dichloroethene?

1,1-DCE can be detected in the breath, urine, blood, and body tissues. Breath tests are now the most common way to tell whether a person has been recently exposed to it. These tests require specialized equipment and are not available at all doctor offices. Your physician can tell you where these tests can be done.

Tests may be used to assess damage to systems including the lung, liver and kidney function. However, the tests cannot pinpoint the cause of the damage. Seek medical advice if you have any symptoms that you think may be related to chemical exposure

Should I continue to use my drinking water if 1,1-dichloroethene is found?

Levels of 1,1-dichloroethene less than the drinking water standard of 7 ug/L are not likely to cause illness. Drinking water with levels slightly above the standard for a short time period does not significantly increase the risk of illness. However, because the risk of illness increases with how much of a chemical a person is exposed to, how often an exposure occurs and how long the exposure lasts, you should seek drinking water that meets the standard.

For additional health information: Please call the Florida Department of Health toll-free help line 877-798-2772 weekdays from 10:00 a.m. to 7:00 pm. Outside of Florida, please call 850-245-4299 between 8:00 a.m. and 5:00 p.m. Or visit us online at: www.myfloridaeh.com

For more information about the health effects from exposure to this chemical in different situations and at higher levels than those usually found in drinking water wells, please see the EPA Consumer Fact Sheet for 1,1-dichloroethene at: http://www.epa.gov/safewater/contaminants/dw_contamfs/11-dichl.html