



**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 methyl tert-butyl ether (MTBE) typically found in drinking water wells.

Methyl tert-butyl ether (MTBE)

What is methyl tert-butyl ether?

Methyl tert-butyl ether (MTBE) is a synthetic flammable liquid with a distinctive, disagreeable odor. Since the 1980s, adding MTBE to unleaded gasoline has helped make it burn more efficiently.

How might exposure to MTBE in drinking water occur?

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

What is the standard for MTBE in drinking water?

The Florida Department of Health's drinking water guideline for MTBE is 35 micrograms per liter of water (35 ug/L). There is no required sampling of private drinking water wells.

How can MTBE affect my health?

To protect health, drinking water guidelines 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 guidelines, 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 guidelines hundreds or thousands of times less than the "no-effect level." Therefore, drinking water with levels slightly above the guideline for a short time does not significantly increase the risk of illness. The risk of illness, however, increases as the level of MTBE 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?

There is little information on the effects in people drinking water contaminated with MTBE. Studies with rats and mice suggest that drinking water with MTBE in it may cause gastrointestinal irritation, liver and kidney damage, and nervous system effects.

How likely is MTBE to cause cancer?

The U.S. Department of Health and Human Services, the International Agency for Research on Cancer, and the U.S. Environmental Protection Agency have not classified MTBE as to its ability to cause cancer.

Is there a medical test for MTBE exposures?

Tests of exhaled air, blood and urine can detect MTBE for up to 1 or 2 days after exposure. These tests are not available at most doctors' offices, but special laboratories with the right equipment can do them. There is no other special test for detecting MTBE exposure.

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

Levels of MTBE less than the drinking water guideline of 35 ug/L are not likely to cause illness. Drinking water with levels slightly above the guideline 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 methyl *tert*-butyl ether in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for MTBE at www.atsdr.cdc.gov/toxfaqs/tfacts91.pdf