FLORIDA DEPARTMENT OF HEALTH

DIVISION OF Environmental Health

Chemicals in Drinking Water Fact Sheet
Florida Department of Health, Division of Environmental Health

This fact sheet discusses possible health risk from exposure to low levels of methyl tert-butyl ether typically found in private drinking water wells.

Methyl *tert*-butyl ether (MTBE)

What is methyl *tert*-butyl ether?

Methyl *tert*-butyl ether is a synthetic flammable liquid with a distinctive, disagreeable odor. It has been added to unleaded gasoline since the 1980s to help the gasoline burn more efficiently.

How might I be exposed to methyl *tert*-butyl ether in my drinking water?

- Drinking contaminated well water
- Living near uncontrolled hazardous waste sites containing MTBE products
- Breathing air in the home which has been contaminated by MTBE ether vapors from use of hot water (showers, dishwashers, etc.)

What is the standard for methyl *tert*-butyl ether in drinking water?

The Florida Department of Health's (DOH) 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 methyl *tert*-butyl ether 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 drinking water standard for a short time period does not significantly increase the risk of illness. The risk of illness, however, increases as the level of methyl *tert*-butyl ether 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?

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

How likely is methyl *tert*-butyl ether to cause cancer?

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

Is there a medical test to see if I have been exposed to methyl *tert*-butyl ether?

MTBE can be detected in exhaled air, blood and urine for up to 1 or 2 days after exposure. These tests are not available at most doctors' offices, but can be done at special laboratories that have the right equipment. There is no other test specific to determining MTBE exposure.

Should I continue to use my drinking water if methyl tert-butyl ether is found?

Levels of MTBE less than the drinking water standard of 35 ug/L are not likely to cause illness. Drinking water with levels slightly above the drinking water 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.

Who can you contact for more 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/community/SUPERFUND/index.html

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 ATSDR ToxFAQs for MTBE at: www.atsdr.cdc.gov/tfacts91.pdf