



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 manganese typically found in drinking water wells.

Manganese

What is manganese?

Manganese is a naturally occurring metal found in many types of rocks. Pesticides, such as maneb or mancozeb also contain manganese. Methylcyclopentadienyl manganese tricarbonyl (MMT) is a fuel additive in some gasolines.

Manganese is an essential trace element and is necessary for good health. Manganese is in foods, like grains and cereals. Some other food, like tea, may contain high amounts of it. Humans need a small amount of manganese in the diet for good health.

How might exposure to manganese in drinking water occur?

- Natural deposits
- Disposal of wastes
- Deposits from airborne sources.

What is the standard for manganese in drinking water?

The Florida Department of Environmental Protection (DEP) drinking water standard for manganese is 50 micrograms per liter (50 ug/L). DEP bases this secondary drinking water standard on taste and appearance rather than on any harmful health effect. No adverse health effects are generally associated with manganese in drinking water. At higher levels, there may be a change in the look, smell, or color of the water. There is no required sampling of private drinking water wells.

How can manganese affect my 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 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 standard for a short time 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 (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 effect someone, in general?

Children need to take in a small amount of manganese daily for good health and to grow. It is constantly present in the mother as the fetus develops during pregnancy. A nursing mother also transfers it to her infant in breast milk at levels that needed for proper growth.

In rare cases, some people lose the ability to remove excess manganese from their bodies. In these cases, they develop nervous system problems from manganese exposure.

How likely is manganese to cause cancer?

The U.S. Environmental Protection Agency has determined that manganese is not classifiable as to whether it causes cancer in humans.

Is there a medical test for manganese exposures?

Tests are available that show levels of manganese in different body fluids. Tests of levels of manganese in blood, urine, feces, and scalp hair can determine exposure to excess levels of manganese if greater than normal. However, these tests cannot predict how the levels in your tissues will affect health. Your doctor can take samples and send them to a testing laboratory.

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

You can continue to use your water without health concerns. Manganese in drinking water is not likely to cause illness. Excess manganese can, however, can cause taste and staining problems.

Because taste and staining problems increase as the manganese level increases, you should seek drinking water that meets the drinking water standard.

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 manganese in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for manganese at www.atsdr.cdc.gov/toxfaqs/tfacts151.pdf