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I Want You To Check Your Water For Nitrates!



This brochure was funded in whole by funds from the Comprehensive Environmental Response, Compensation, and Liability Act trust fund through a cooperative agreement with the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services.

Publication Number: 09-12948

Revised 12/2015



Nitrates in Drinking Water Is The Water Your Children Drink Safe?



What are nitrates?

Nitrates occur naturally in soil, water, plants, and food. It is formed when microorganisms in the environment break down organic materials, such as decaying plants, animal manure, and sewage. It is commonly found in green leafy and root vegetables, such as spinach and carrots. It may also be in foods to which it has been added such as smoke or cured meat, fish, and poultry. Nitrates can also be found in chemical fertilizers.



How do nitrates get into drinking water?

Nitrates are one of the most common contaminants found in water. While it is often difficult to pinpoint the exact source of where the nitrates came from, the source is often contributed to runoff. Runoff from fertilized soil, municipal or industrial wastewater, landfills, animal feed lots, septic systems, urban drainage, animal waste, or decaying plant material may increase the amount of nitrates in water.

If you have a private water well nitrates may get into the water more easily if your well is poorly constructed or located too close to a septic system.

While the levels found in drinking water normally are very low, high levels can occur. The U.S. Environmental Protection Agency (EPA) has set an acceptable standard for nitrates in public water systems at 10 milligrams per liter (mg/L). Individuals who obtain their water from private wells can use this level as a guide.

Can I treat my water to remove the nitrates?

There are two treatment options to reduce or remove nitrates from water: demineralization and ion exchange.

Demineralization removes nitrates and other minerals from the water and can be accomplished in two ways: distillation and reverse osmosis. Both of these methods are expensive, and therefore they are usually used to treat drinking water only. Water for other household uses can be left untreated.

An ion exchange system works similar to a water softener by removing all the dissolved inorganics. Water passes through a column of beads that the dissolved inorganics (i.e. nitrates and sulfates) stick to. An ion exchange system is not designed to remove bacteria, viruses, or parasites. In addition, if water has high mineral (i.e. lead, calcium, or sodium) content the system does not work as well.



What if my water contains nitrates?

If the level of nitrate in your well is more than 10 parts per million (ppm) or if you don't know the levels, then the Texas Department of State Health Services recommends the following:

- ✓ bottled water should be used to mix infant formula and foods
- ✓ children should drink bottled water
- ✓ pregnant women should drink bottled water



Once a water supply becomes contaminated with nitrates, it is very difficult and costly to treat. One solution is using an alternate water source. Bottled water is a short-term solution to meet the needs of drinking water and food preparation.

Contact your state certification officer to perform tests on your drinking water

For a list of laboratories in your area that will perform tests on drinking water for a fee go to...

<http://water.epa.gov/scitech/drinkingwater/labcert/statecertification.cfm>

What health effects do nitrates cause?



Short-term exposure to high levels of nitrate in drinking water can cause serious illness and in extreme cases, even death. Long-term exposure to nitrates can cause diuresis, increased starchy deposits, and bleeding of the spleen. The body changes nitrate to nitrite which is absorbed into the bloodstream, as a result you may develop a special type of anemia called methemoglobinemia. This means that your blood is unable to carry enough oxygen to the body's tissues. This condition can be fatal for infants.

Because nitrate is converted to nitrite by the body and nitrite reduces the ability of the child's blood to carry oxygen. This can result in the rapid deterioration of the child's health over a period of days. Symptoms include shortness of breath and blueness of the skin, a condition called "methemoglobinemia". This condition is first evidenced by a bluish tint on the baby's lips which spreads to the fingers, toes, face, and eventually the entire body (blue baby syndrome). If the problem is not dealt with immediately, the baby can die.

Babies younger than 6 months get methemoglobinemia easily because:

- ✓ they drink a lot of liquid;
- ✓ their stomach acidity can be lower than adults. This lets more bacteria grow that can change nitrate to nitrite;
- ✓ they have a form of hemoglobin that is more likely to form methemoglobin;
- ✓ they are less able to change methemoglobin back to normal hemoglobin.

What Parents Should Do?

Parents need to be especially aware of the nitrate level in the water they are using to make infant formulas. If you suspect that your water may have higher than normal levels of nitrates, then you should use bottled water for any food that infants or small children consume. Boiling water to make infant formula does not remove or dilute the nitrates in the water. The evaporation of the water will actually cause nitrate levels to increase in the water you have boiled.

Pregnant women can also get nitrate-induced methemoglobinemia easily because they have higher than normal levels of methemoglobin. The level of methemoglobin peaks around the 30th week of pregnancy and declines to a normal level after delivery. Pregnant women should avoid drinking water high in nitrates.



How do I find out if my water has nitrates in it?

A water test will determine if your water is contaminated with nitrate. Tests are available through private laboratories in your area. The laboratory can provide instructions for collecting the sample.

Sampling is particularly important if you have a private well and septic system on less than 1.5 acres of land. If you have a shallow well (100 feet or less in depth), take extra precautions to protect your well head from damage or floodwater and have your well tested for nitrates yearly.

When should you have your well tested?

- There are known problems with well water in your area
- You have experienced problems near your well (i.e., flooding, land disturbances, and nearby waste disposal sites)
- You replace or repair any part of your well system
- You notice a change in water quality (i.e., taste, color, odor)



Centers for Disease Control and Prevention. (2010). Well testing. Retrieved from <http://www.cdc.gov/healthywater/drinking/private/wells/testing.html>