

Drinking Water and Nitrates

What are Nitrates?

Nitrate (NO_3) is a compound of nitrogen and oxygen and is found in many foods like spinach, lettuce, beets, carrots, meat and meat products. Vegetables account for more than 70% of the nitrates ingested in the human diet. It is also found naturally in the soil and in ground water. Other common sources of nitrates which are not naturally found in the environment include: municipal and industrial wastewaters, refuse dumps, animal feed lots, septic systems, runoff or leachate from manured or fertilized agricultural lands and urban drainage.

How do I test for nitrates in my drinking water?

If you have a well, you can have water tested. Contact a private laboratory for details. Public Health can provide you with a list of accredited labs. If you are on a municipal or communal supply, contact the water works operator for the information. They are required to test for nitrates on a regular basis. The maximum acceptable concentration for nitrates in well or municipal water is 10 milligrams per litre (10 mg/L). This standard is applied under the Ontario Drinking Water Standards for public water supplies and is used as a guide for private water supplies.

What are the health effects?

The effects of consuming nitrates on the health of children over 6 months of age and of adults have not been proven and are still under study. There is weak evidence of an association between gastric cancer and moderate levels of nitrates. The health risk is not immediate and occurs over a long period of time. However, for infants younger than 6 months of age, the health risk is more immediate and can be fatal. An infant's

stomach is less acidic than that of an adult and this allows bacteria to live in the stomach. These bacteria may change the nitrate to nitrite. Nitrite is toxic because it can combine with the red blood cells and prevent them from carrying oxygen to the rest of the body. This condition is called methemoglobinemia and can make infants turn blue from lack of oxygen.

Reducing exposure

Breastfed infants require no additional water and breastfeeding is the healthiest way to feed your baby. If you have decided to formula feed your baby, do not use your well water until you have your water tested. Use ready to feed infant formula or use bottled water to prepare concentrated or powdered infant formula. Do not boil water to get rid of nitrates. It will only concentrate the nitrates. Reverse osmosis or ion exchange devices will remove some nitrates. Check with the manufacturer of these treatment devices to ensure they remove enough nitrates to meet the standard. The treated water should be tested to ensure adequate nitrate removal.

