

Nitrate

Nitrates are chemicals that occur naturally in soil and groundwater. The presence of nitrates in drinking-water is usually the result of residential or agricultural fertilizers or seepage from septic systems. Other sources may include the natural decay of plants and animal waste.

Humans can be exposed to nitrates through both food and drinking-water. Common food sources of nitrate include:

- Vegetables such as carrots, spinach and lettuce
- Cured meats such as ham, bacon or hot dogs

Drinking water may be affected by:

- Septic systems
- Inorganic residential fertilizers
- Runoff or seepage from fertilized agricultural lands

It is common to find a higher level of nitrate in drinking-water systems near agricultural areas where fertilizer is used and in neighbourhoods where there are many septic systems. Nitrate also tends to be found in higher concentrations in water from shallow wells (less than 50 ft. deep).

The Ontario Drinking Water Standard for nitrate is 10 mg/L as nitrate-nitrogen. This is the maximum acceptable concentration (MAC) for drinking water.

Health Effects

An elevated level of nitrate in drinking-water is primarily a health

concern for bottle-fed infants less than six months of age who have not yet developed the ability to properly digest nitrates. This can lead to a rare but very serious condition called methemoglobinemia, or blue-baby syndrome. The inability to digest nitrate leads to the production of nitrite which affects the amount of oxygen carried in the blood, resulting in a bluish tint to the skin. If the level of nitrate in your water is above 10 mg/L, you should use a different water supply to prepare baby formula and food or use ready-to-use formula.

Breastfeeding is safe. Breast milk is not affected by nitrates.

Testing

Nitrates are tasteless, odourless and colourless. The only way to know whether there are nitrates in your drinking-water is to have it tested. Municipal drinking-water systems are tested regularly, but if you draw your drinking water from a well, the health unit recommends testing your well water for nitrates at least once a year. Visit the Ministry of Environment website at www.ene.gov.on.ca for a complete list of accredited laboratories.

It is also recommended that you test your well water for bacteria at least three times a year. Bacterial contamination can be an indicator that surface water is entering your well which may also contain nitrates. Bacterial testing is free for private homeowners. You can pick up a test bottle and instructions at your local health unit office.

Prevention

Here are a few ways you can help keep your water safe.

- Improve agricultural practices such as fertilizer storage and manure application.
- Inspect your septic system every 3-5 years.
- Avoid activities such as mixing or storing chemicals around water wells.
- Regularly inspect your well for cracks and evidence of flooding.
- If necessary, install a water treatment device. Reverse osmosis, ion exchange and distillation are all effective home water treatment methods. Contact a licensed professional about costs, limitations and maintenance requirements.
- **Boiling water will not remove nitrates and will only increase concentrations.**
- Once the level of nitrates in your drinking water is below 10 mg/L, it is safe to resume using water for formula and food preparation for infants less than six months of age.

More Information

Contact *Your Health Connection* at 705-721-7520 (1-877-721-7520) for more information about nitrate testing or visit our website at www.smdhu.org