

## Nitrates in Drinking Water

Nitrates are ions that occur naturally throughout the environment or as a result of human activities.<sup>1</sup> Nitrates are products of the oxidation of nitrogen, as part of the cycle required by all living systems for the production of complex organic molecules, such as proteins and enzymes.<sup>1</sup>

### How do nitrates get into drinking water?

Agricultural runoff, refuse dump runoff, and contamination with human or other animal wastes are responsible for the increases in nitrate concentrations in both surface waters and groundwaters.<sup>1</sup> Sources can include: fertilizers, leachate from garbage dumps, municipal and industrial waste water, and septic systems.

### How much nitrate is allowed in drinking water?

The maximum acceptable concentration for nitrate (as nitrogen) in drinking water in Ontario is 10 mg/L.<sup>2</sup> This amount is set to be protective of the health of the most vulnerable subpopulation, formula fed infants.<sup>1</sup>

### What are the health effects of nitrates in drinking water?

Infants who consume water high in nitrates are at risk of developing a life threatening illness called methaemoglobinemia (also known as blue-baby syndrome).<sup>1</sup> Nitrates cause infants' blood to have reduced ability to carry oxygen, which can cause them to have trouble breathing and turn a bluish colour.<sup>3</sup> This would require immediate medical care.

The effects of nitrates on pregnant women continue to be studied. If you are pregnant and have concerns about nitrates in your drinking water, it is recommended that you seek an alternate water source that is low in nitrates.

### How do I know if I have nitrates in my drinking water?

The only way to confirm if there are nitrates in your drinking water is to have a water sample analyzed by a **licensed laboratory**. This is only necessary if you receive your drinking water from a well, since municipal systems are routinely monitored for nitrates and are legally required to notify users if levels are found higher than allowed.

## What should I do if I have nitrates in my drinking water?

If your well water has been tested and found to have elevated levels of nitrates:

- Identify sources of nitrate contamination, such as fertilizers, septic tanks, manure, etc., around your property and reduce entry into your well.
- Regularly inspect your well and test your well water. Hire a licensed well contractor if needed.
- Do **not** boil water containing nitrates. This will actually increase the concentration of nitrates in the water.
- If you have made an informed decision to formula feed your infant, you should prepare formula with a safe source of water (e.g. bottled water), especially for infants less than six months of age.
- If you are further concerned about nitrates in your drinking water, it is recommended that you contact a professional about installing an effective water treatment device to reduce the amount of nitrates in your drinking water.

## How can I get my water tested?

The Middlesex-London Health Unit recommends testing your well water for nitrates annually by submitting a drinking water sample to a **licensed laboratory**.

## Additional Information

To speak to a Public Health Inspector on the Environmental Health Team about nitrates in drinking water, please call:

- 519-663-5317

## Resources

Licensed Laboratories in Ontario – [www.ontario.ca/page/list-licensed-laboratories](http://www.ontario.ca/page/list-licensed-laboratories)

## References

<sup>1</sup>Health Canada. (2013, June). *Guidelines for Canadian drinking water quality: Guideline technical document – Nitrate and nitrite*. Retrieved from <http://healthycanadians.gc.ca/publications/healthy-living-vie-saine/water-nitrate-nitrite-eau/alt/water-nitrate-nitrite-eau-eng.pdf>

<sup>2</sup>Ontario. Ministry of the Attorney General. (2003). *Safe Drinking Water Act, 2002. Ontario Regulation 169/03 Ontario Drinking Water Quality Standards*. Retrieved from <http://www.ontario.ca/laws/regulation/030169>

<sup>3</sup>World Health Organization. (2011). *Nitrate and nitrite in drinking-water*. Retrieved from [https://www.who.int/water\\_sanitation\\_health/dwq/chemicals/nitratenitrite2ndadd.pdf](https://www.who.int/water_sanitation_health/dwq/chemicals/nitratenitrite2ndadd.pdf)

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