



# FACT SHEET

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## NITRATES IN PRIVATE DRINKING WATER SUPPLIES

### What are Nitrates?

Nitrates are present in groundwater due to contamination by decaying plant or animal material, manure, fertilizers, domestic sewage, or geological formations containing soluble nitrogen compounds.

### Effects of Nitrate Concentrations

There may health problems associated with high levels of nitrate, above 10 mg/L in drinking water. Infant methemoglobinemia or "blue-baby syndrome" is a serious condition caused by the conversion of nitrate to nitrite by certain bacteria nitrate-reducing bacteria that survive in the alkaline gastrointestinal system of infants. The nitrite causes changes in the ability of blood to carry and transfer oxygen to tissues. The condition can turn the blood a bluish colour, thus the term "blue-baby". Nitrate poisoning from drinking water appears to be restricted to infants less than six months, older children and adults drinking the same water appear unaffected. Well water should be tested for nitrate concentration before using to dilute infant formula. An alternative, safe, source to well water may be preferable for feeding infants.

Consumers should also be aware that some research literature suggests there may be a weak association between gastric cancer and high levels of nitrates in drinking water. Levels greater than 10 mg/L of nitrates as N are considered high.

### Alternatives for Safer Drinking Water

The source of nitrate pollution should be determined where possible, and reduced or eliminated, whenever practical means permit. For treatment of high nitrate water, the use of ordinary filters and water softeners, or boiling of water will not reduce nitrates. Boiling will, in fact, increase the level of nitrate as the water evaporates leaving harmful elements behind.

Alternative drinking water supplies, bottled water, or treatment such as reverse osmosis or distillation could be considered.

### Investigation and Testing for Nitrates

Individuals with private supplies may contact their area public health inspector for further information on nitrate testing in drinking water. Advice can be given as to what treatment methods or alternatives are available to help ensure a safe water supply.