



Nitrates in Drinking Water

Nitrate is a chemical found in most fertilizers, manure, and liquid waste discharged from septic tanks. Natural bacteria in soil can convert nitrogen into nitrate. Rain or irrigation water can carry nitrate down through the soil into groundwater. Your drinking water may contain nitrate if your well draws from this groundwater.

HOW DOES NITRATE AFFECT HEALTH?

Nitrate is an acute contaminant. That means a single exposure can affect a person's health. It reduces the ability of red blood cells to carry oxygen. In most adults and children, these red blood cells rapidly return to normal. However, in infants it can take much longer for the blood cells to return to normal. Infants who drink water with high levels of nitrate (or eat foods made with nitrate contaminated water) may develop a serious health condition due to the lack of oxygen. This condition is called methemoglobinemia or "blue baby syndrome."

WHAT ARE THE SIGNS OF "BLUE BABY SYNDROME"?

Moderate to serious "blue baby syndrome" may cause brownish-blue skin tone due to lack of oxygen. This condition may be hard to detect in infants with dark skin. If an infant has dark skin, look for a bluish color inside the nose and mouth, on the tongue, lips, or nail beds of the hands or feet.

Mild to moderate "blue baby syndrome" may cause signs similar to a cold or other infection (fussy, tired, diarrhea or vomiting). While there is a blood test to see if an infant has "blue baby syndrome," doctors may not think to do this test for babies with mild to moderate symptoms.

If a baby has brownish-blue skin tone or a bluish color to the lips, tongue, gums, nail beds, or nose, take the baby to a hospital immediately. A medication called "methylene blue" will quickly return the baby's blood to normal.

HOW TO PREVENT "BLUE BABY SYNDROME"

- Do not give infants under 12 months drinking water with nitrate levels above 10 mg/L.
- Do not offer high-nitrate vegetables such as beets, broccoli, carrots, cauliflower, green beans, spinach, and turnips until the baby is at least seven months old.
- On a private well? Nitrate levels in well water can vary throughout the year. If you have a private well

and you're not sure about your water quality, you may want to use bottled water to prepare your baby's food and drinks.

- **It is important to note that although boiling water kills bacteria, it will not remove chemicals such as nitrate.** In fact, boiling may actually increase the nitrate level.

WILL BREAST-FEEDING GIVE MY BABY "BLUE BABY SYNDROME"?

Low levels of nitrate have been found in breast milk, but the levels are not high enough to cause "blue baby syndrome."

CAN NITRATE AFFECT ADULTS?

Although red blood cells in older children and adults quickly return to normal, some health conditions make people susceptible to health problems from water with nitrate more than 10 mg/L. They include:

- Individuals who don't have enough stomach acids.
- Individuals with an inherited lack of the enzyme that converts affected red blood cells back to normal (methemoglobin reductase).
- Women who are pregnant or trying to become pregnant.

Contacting Us

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