



Bureau of Community and Environmental Health

Health Effects of Nitrate in Water and Homemade Baby Food

What is nitrate and how is it used?

Nitrate is a form of nitrogen found in the environment and comes from many sources. Nitrate is formed when plants and other organic matter rot. Septic and sewer systems are sources of nitrates. Nitrate also gets into the soil from animal wastes and nitrogen-based fertilizer application including animal manures, human wastes, composts, and sewage sludge, as well as manufactured fertilizers.

How can nitrate affect my health or my child's health?

People may be exposed to nitrate in both food and water. Healthy adults and older children absorb nitrate in the gut and excrete it in urine. Adults who are exposed to fairly large amounts of nitrate usually do not develop adverse, short-term health effects.

Infants younger than six months old, however, are sensitive to nitrate poisoning which may result in serious illness or death. Excess nitrate reduces oxygen in the child's blood, causing shortness of breath and blueness of the skin. The name of this condition is methemoglobinemia, or "blue baby syndrome." This illness can be a serious condition in which the child's health deteriorates rapidly over a period of days.

Why is nitrate in certain homemade baby foods a concern?

Spinach, carrots, beets, turnips, and collard greens are high in nitrates. According to the American Academy of Pediatrics, infants under six months old may develop "blue baby syndrome" if they are fed homemade baby food prepared from these plants. Homemade baby food prepared from spinach, carrots, beets, turnips, and collard greens are only a concern for infants under six months old.

Baby food companies test the water and soil from farms before purchasing these vegetables. They only buy vegetables from farms with low nitrate soil and water sources. These vegetables are safe in baby foods purchased from a store.

Why is nitrate in groundwater a concern?

Groundwater supplies 95% of the water used in Idaho households. Groundwater also supplies drinking water to 204 cities and towns. If your drinking water has high levels of nitrate, it may cause adverse health effects when fed to infants in drinks, formula, or food.

How is nitrate in groundwater regulated?

The U.S. Environmental Protection Agency (EPA) has established a federal drinking water standard, called a Maximum Contaminant Level (MCL) of 10 milligrams per liter (mg/L), or 10 parts per million (ppm) for nitrate. The Idaho groundwater quality standard is also 10 mg/L for nitrate.

Public water systems are required to sample for various contaminants including nitrate. There is no required sampling of domestic or stock wells. However, it is recommended that owners test their wells for nitrate on a regular basis.

How do I find out if my drinking water is contaminated with nitrate?

Nitrate is tasteless, odorless, and colorless. Public water systems are required to report results of nitrate testing to their customers every year. To find out if there is nitrate in your private well water, have it tested by a laboratory that is certified for nitrate testing by the Idaho Division of Health. Laboratories will provide sampling bottles and instructions.

Contact your local health department, or look in the Yellow Pages under "Laboratories- Testing" or "Water Analysis" for a certified laboratory serving your area.

It's a good idea to have a routine nitrate test at least annually if you have a private well. You should also have your water tested for nitrate if you are a woman planning on becoming pregnant or if infants will be using the water.

Important Points:

High levels of nitrate in drinking water can cause blue baby syndrome in children under 6 months old. If you use well water, have it tested for nitrates. If you are making homemade baby food, avoid the following vegetables if your baby is under six months old: **Spinach, Carrots, Beets, Turnips and Collard Greens**

For more information: Call the Idaho CareLine at 1-800-926-2588.

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