

wellcare™ information for you about Nitrate

What is NITRATE?

Nitrate, a nitrogen-based chemical, is the most frequently detected contaminant in well water. In a national survey, the EPA found nitrate in 60 percent of rural domestic wells. However, only 2.4 percent of those wells exceeded safety standards for nitrate.

The principle sources of nitrate contamination are fertilizers, animal waste, particularly from feed lots, and septic tank waste. The most vulnerable wells are those in farm communities or areas with large numbers of aging septic tanks. High nitrate levels are the most common reason for well closure.

Regions with the greatest potential for nitrate contamination include parts of the Southeast, the lower Mississippi River and intensively irrigated areas of the West.

What are the health effects of Nitrate?

Ingestion of water containing high nitrate concentrations can be fatal to infants. Nitrate is responsible for a blood disorder called methemoglobinemia or “blue baby syndrome.” Symptoms include shortness of breath and blue-tinged skin. Nitrate is rarely a problem for people older than six months, except at extremely high levels.

How do I test for Nitrate?

The EPA's maximum limit for nitrate in drinking water is 10 parts per million. The amount of nitrate in ground water is closely related to the land use activities in the upstream watershed or on the land over the aquifer that serves your well. If the initial test reflects nitrate levels of more than 5 parts per million, the EPA recommends that you test again in a few months to see if the level is increasing.

What are the treatments for Nitrate in drinking water?

Three treatments to reduce nitrate include ion exchange, electrodialysis and reverse osmosis processes. Commercial line pressure and pump driven reverse osmosis membranes can reduce nitrate in water by 60 to 95 percent.

These technologies may have a wide range of effectiveness based on the amount of nitrate in the water supply and the balance of other ions in the water. A well professional can help you select the right treatment.

For more information on your ground water

Your local well contractor, health department, cooperative extension service and state environmental or natural resources department can provide more information about ground water in your area. Check the telephone directory or search the web under “water wells” or “government agencies.”

For more information about wells and other wellcare™ publications

wellcare™ is a program of the **Water Systems Council (WSC)**. WSC is a national nonprofit organization dedicated to promote the wider use of wells as modern and affordable safe drinking water systems and to protect ground water resources nationwide.



Contact us at 888-395-1033 or visit www.watersystemscouncil.org

Other wellcare™ publications:

A Consumer's Guide to Water Wells

A Consumer's Guide to Well Testing & Disinfection

wellcare™ Info Sheet: Home Drinking Water Treatment Devices

wellcare™ Info Sheet: Water Quality – arsenic, bacteria, chromium, iron, MTBE (methyl tertiary butyl ether), nitrate, radon, radium, sulfur and TCE (trichloroethylene)

Other organizations you may want to contact:

Water Quality Association	630-505-0160	www.wqa.org
The Ground Water Foundation	800-858-4844	www.groundwater.org
American Ground Water Trust	603-228-5444	www.agwt.org
National Ground Water Association	800-551-7379	www.ngwa.org

This publication was developed in part under Assistance Agreement No. X-82849101-1 awarded by the U.S. Environmental Protection Agency. It has not been formally reviewed by EPA. The views expressed in this document are solely those of WSC. EPA does not endorse any products or commercial services mentioned in this publication.