

wellcare[®] information for you about Arsenic & Groundwater

What is Arsenic?

Arsenic is a naturally occurring mineral found in soil and bedrock. Arsenic works its way into ground water through erosion. Wells that are in or just below large amounts of shale or shaley soil often have higher levels of arsenic in the water.

Arsenic also is widely used to make wood preservatives, paints, dyes, metals, drugs, soaps and semi-conductors, and was once common in pesticides. Manufacturing, farming or simple mishandling of these materials can permit arsenic to enter ground water.

Arsenic can be present in well water as Arsenic III (arsenite), Arsenic V (arsenate), or a combination of the two. Arsenic III is more toxic and more common in groundwater than Arsenic V.

What are the health effects of Arsenic?

Arsenic poisoning can easily go undetected because many of its symptoms point to a number of other illnesses. Health effects from arsenic exposure include skin damage, diabetes, circulatory system problems and an increased cancer risk, including cancers of the skin, bladder, lungs, kidneys, nasal passages, liver and prostate. Early warning signs may include stomach pain, nausea, vomiting, diarrhea and numbness in the extremities.

Arsenic is not easily absorbed through the skin and does not evaporate into the air. Showering, bathing or other household uses of water are safe unless your arsenic levels are higher than 500 parts per billion (ppb).

How do I test for Arsenic?

Arsenic in drinking water has no taste or odor. The only way to determine its presence is to have the water tested. The EPA sets a maximum limit for arsenic in public drinking water supplies of 10 ppb. Some states have set the limit at 5 ppb or even lower.

Contact your state or local health department for a list of state-certified laboratories in your area. If there is arsenic in your water, a laboratory can determine how much and which type(s) of arsenic is present, through a method called "speciation." This is significant because treatment methods vary for each type. You may also wish to test for other contaminants, including iron and manganese, because the presence of these contaminants may hinder the effectiveness of arsenic removal and will need to be removed before treatment.

It is particularly important to test regularly for arsenic – at least once a year – in areas of concern. Your state's Department of Natural Resources or Geological Survey Office should have information on areas prone to high levels of arsenic.

What are the treatments for Arsenic in drinking water?

Arsenic V is easy to reduce by ion exchange for point of entry (entire household) systems and by reverse osmosis for point of use systems.

Effective point of entry systems for the reduction of both Arsenic III and V can be accomplished by the application of granular ferric oxide media or other adsorption-based systems. No chemicals need to be added. Iron oxide filters have also been successful in removing both types of arsenic.

Water should be tested before and after installation of the treatment device and annually thereafter to confirm effectiveness. *Do not attempt to remove arsenic by boiling water. This only serves to concentrate the contaminant.*

For more information about Arsenic and Groundwater

Massachusetts Department of Environmental Protection. Arsenic in Private Well Water: Q & A. Retrieved on May 23, 2007 from www.mass.gov/dep/water/drinking/arswell.htm

U.S. Environmental Protection Agency (EPA). Arsenic in Drinking Water. Retrieved on May 23, 2007 from www.epa.gov/safewater/arsenic/index.html

For more information on your drinking water

Contact your local water well professional or health department for information on ground water in your area. The following websites provide up-to-date information on efforts to protect drinking water supplies and steps you can take as a private well owner. In addition, you may contact the wellcare® hotline at 1-888-395-1033.

Underwriters Laboratories Inc. Drink Well™ Well Water Testing
U.S. Environmental Protection Agency
Water Quality Association

www.uldrinkwell.com
www.epa.gov
www.wqa.org

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 promoting the wider use of wells as modern and affordable safe drinking water systems and to protecting ground water resources nationwide. This publication is one in a series of wellcare® information sheets. There were more than 60 available at the time this document was published. They can be downloaded FREE from the WSC website at www.watersystemscouncil.org. Well owners and others with questions about wells or ground water can also contact the wellcare® hotline at 1-888-395-1033 or visit www.wellcarehotline.org



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